

Chapter 24: Indirect Effects

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24.1 Introduction

This chapter evaluates the potential indirect effects of the Mountain View Corridor (MVC) project alternatives identified in Chapter 2, Alternatives. For this project, the most important indirect effect would be changes to land use and their consequent environmental impacts. This type of indirect effect involves changes in the rate, intensity, location, and/or density of land development. In this case, the indirect effect does not involve new or additional development that would be attracted to the study area by the MVC project, because substantial growth is already projected by the State of Utah for the MVC study area independent of transportation improvements.

Indirect Effects Analysis Area. The indirect effects analysis area is the area within an approximately 5-mile radius of the MVC project interchanges and



within approximately 0.5 mile of the MVC project transit stations because indirect effects from the MVC project could occur in these areas. In some cases, the indirect effects analysis area overlaps with the MVC study area boundary because the project interchanges could affect areas outside the MVC study area (see Section 1.1, Study Area Description, in Chapter 1 for a definition of the project study area). The indirect effects analysis area includes the MVC study area and parts of two areas outside of and at opposite ends of the MVC study area (see Figure 24-1, Study Area and Indirect Effects Analysis Area). The differences between the MVC study area and the indirect effects analysis area are as follows:

- The indirect effects analysis area includes part of the northwest quadrant of Salt Lake City north of Interstate 80 (I-80). The northwest quadrant is located partially within and partially outside the north end of the MVC study area. The City annexed this mostly vacant land with plans to develop it in the future. Most of this land is owned by Zion Securities, a land-holding agency of The Church of Jesus Christ of Latter-day Saints (LDS Church). This area has been included in the indirect effects analysis area because of its proximity to the northern terminus of the project and because the project could affect future development in this area.
- The indirect effects analysis area includes some of the land within the city limits of Eagle Mountain and Saratoga Springs in Utah County that is within 5 miles of the closest proposed MVC interchanges; these cities are partially located outside and southwest of the MVC study area. These cities have been included in the indirect effects analysis area because the improved access and mobility provided by the project could affect future development in these cities.
- The indirect effects analysis area does not include Camp Williams, a military installation partially in the MVC study area, because the project would not have indirect effects within the Camp Williams boundaries. In addition, the indirect effects analysis area does not include the area along the Oquirrh Mountains bench adjacent to and west of the MVC study area that is undevelopable due to steep slopes. Farther west along the west bench is property owned by Kennecott Land, which is planned for development over the next several decades. However, the development of this land largely depends on separate roadway projects that might occur in the future, such as a future expansion of State Route (SR) 111.
- The indirect effects analysis area does not include land east of the MVC study area in the already developed eastern side of the Salt Lake Valley served by Interstate 215 (I-215) and Interstate 15 (I-15).



Consistent data available for the MVC study area are used in this analysis. Some of the data used in the analysis for areas outside the MVC study area are less comparable with the data in the MVC study area. For example, no comparable land-use, population, or employment data are available by traffic analysis zone for the northwest quadrant of Salt Lake City because it is vacant and is not included in the project travel demand model. Also, there are some comparable land-use, population, and employment data for the entire land area within the cities of Eagle Mountain and Saratoga Springs, but these data are not as complete as the data for the portions of these two cities that are within the MVC study area. These differences are noted in the text where appropriate.

24.2 Regulatory Overview

The Council on Environmental Quality (CEQ) regulations for implementing the National Environmental Policy Act (NEPA) of 1969 require that an Environmental Impact Statement (EIS) analyze the direct and indirect effects of the proposed action. Indirect effects are defined by the CEQ regulations (40 Code of Federal Regulations [CFR] 1508.8) as effects

which are caused by the [proposed] action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to the induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Federal agencies such as CEQ and the Federal Highway Administration (FHWA) have stated that there is no prescribed specific technique or method that must be used to analyze the indirect effects of transportation projects (FHWA 1992). A national survey of recently completed EISs (USDOT 2005) found that a wide range of methods is being used to evaluate indirect effects.

For this project, indirect effects are defined as those that could result from the project beyond direct impacts to property and resources within the project right-of-way and the construction footprint. In this analysis, indirect effects are those resulting from land development that could occur due to the improved accessibility and mobility in the area influenced by the project. Indirect effects to natural resources would typically be caused by the conversion of undeveloped and partially developed land that contains such resources to residential, industrial, commercial, and governmental land uses. Indirect growth effects can have either positive or negative effects on communities and natural resources.

24.3 Methodology

24.3.1 Overall Approach

Evaluating the indirect effects of transportation projects is a complex task. An indirect effects analysis involves estimating how a given project will influence land-use patterns over a 25- to 30-year period. Land-use patterns are the product of interdependent decisions by numerous parties including local elected officials, local planning staff, developers, citizens, regional planning authorities, transportation agencies, and many other public and private entities. Moreover, land-use patterns are strongly affected by economic and demographic forces that are beyond the control of governmental authorities.

For the MVC project, the task of estimating indirect effects is also complicated because development patterns would also be influenced by several other major transportation projects that are currently in development. These other projects include the 3500 South project in Salt Lake County, the I-15 project in Utah County, and others. (See Chapter 25, Cumulative Impacts, for a list of other projects.) These transportation projects would have land-use impacts of their own, so it is difficult to single out one project and determine specifically how that project could affect development patterns.

Given these difficulties with making specific predictions about how the project would alter land-use patterns, this indirect impacts analysis employs a qualitative approach and is based on in-depth interviews with local land-use officials and developers as well as consideration of land-use plans, aerial photographs, geographic information systems (GIS) mapping, and other materials. The major elements of this approach are described below.

24.3.2 Data Sources

24.3.2.1 Population and Employment Forecasts

To provide a basis for evaluating indirect effects, this EIS uses the population and employment projections prepared by the Demographic and Economic Analysis Section of the Utah Governor's Office of Planning and Budget for Salt Lake and Utah Counties (Governor's Office of Planning and Budget 2005). The projections from the Governor's Office, which are discussed in greater detail below, provide population and employment projections for every county in Utah. The current projections extend through the year 2050. The local and regional planning agencies use the Governor's Office population and employment projections to develop their future transportation and land-use planning documents. The projections from the Governor's Office are particularly

appropriate for planning purposes because they project growth trends based on economic and demographic trends using a statistical model developed by the Governor's Office.

24.3.2.2 Land-Use Forecasts

The two regional planning agencies that serve portions of the MVC study area use the projections from the Governor's Office of Planning and Budget referenced in Section 24.3.2.1, Population and Employment Forecasts. These planning agencies are the Wasatch Front Regional Council (WFRC), which serves the Salt Lake County portion of the MVC study area, and the Mountainland Association of Governments (MAG), which serves the Utah County portion. These metropolitan planning organizations are responsible for preparing the long-range transportation plans (LRTP) for the region.

As part of the transportation planning process, the metropolitan planning organizations allocate the countywide employment and population data developed by the Governor's Office by traffic analysis zone. (A traffic analysis zone is a geographic area with similar travel, demographic, roadway network, and other characteristics that are used to compile data for travel modeling and transportation planning.) These allocations provide specific information about the distribution of future population and employment growth in each county. The metropolitan planning organizations have developed population and employment projections at the traffic analysis zone level to the year 2030 in coordination with municipalities and the county in their area of jurisdiction using the growth projections provided by the Governor's Office.

For the purpose of developing the LRTP, the metropolitan planning organizations develop a distribution of population and employment at the traffic analysis zone level. This distribution is commonly referred to as the *LRTP land-use forecasts*. The LRTP land use is developed as part of the transportation planning process and assumes the implementation of the projects that are included in the LRTP.

24.3.2.3 Aerial Photographs, Satellite Images, and GIS Mapping

Aerial photographs for the MVC study area were developed for the project in 2003. Additional aerial photographs were obtained from Utah's Automated Geographic Reference Center in 2005. Satellite images were obtained through the University of Utah Energy and Geoscience Institute to show the differences in the approximate coverage of urban development in the Salt Lake Valley in 1972, 1990, and 2004. The University of Utah aerial images are produced from National Aeronautics and Space Administration (NASA) satellites.

The 1990 and 2004 NASA images are typical overhead satellite images. The 1972 satellite image is unique because it shows near-infrared reflections from ground surfaces. Near-infrared reflections from plants appear as a slightly different color (darker blue) than reflections from developed urban areas. This aerial image was used to determine the approximate locations of developed areas in 1972.

In addition, GIS technology was used to analyze the aerial photographs, analyze the spatial information, and create layouts to show areas in the MVC study area that could be affected by the MVC alternatives. NASA satellite images were used to create Figure 24-2, Urban Development 1972–2004, which consolidates the three NASA images into one and shows trends in development patterns over time (1972, 1990, and 2004). Figure 24-2 clearly shows that much of the MVC study area already is developed.

24.3.2.4 Interviews with Local Officials and Others

In addition to the data sources listed above, the indirect effects analysis used current information and insights from local officials and others who directly affect land development in the indirect effects analysis area. Interviews were held in January, February, and May 2005 with 14 municipal and county planning departments and 13 major real estate development and holding companies. These interviews yielded specific information about planned land-development projects, reasonably foreseeable development patterns, the potential impact of transportation planning decisions on future growth trends, and the degree to which future development and real estate investment decisions were related to the project. The interviews were structured based on a questionnaire that was mailed to interviewees in advance. The questionnaire was intended to generate discussion regarding the effect of each MVC alternative on existing land-use plans and trends and future land-use decisions. The interviews included a discussion of the interviewees' responses to the questionnaire as well as a more open-ended discussion of the indirect effects of the project. In some cases, a follow-up interview was held to clarify the interviewees' initial responses (Parsons Brinckerhoff 2005b). Information received in 2005 was updated in July and August 2007 as appropriate.

24.3.3 Land-Use Changes from the Roadway Alternatives

The indirect effects analysis estimated land-use changes due to the proposed roadway alternatives, land-use changes due to the proposed transit alternative, and the environmental impacts of the MVC alternatives. The analysis of land-use changes from the roadway alternatives involved two main steps:

- First, the current baseline development trend was established by analyzing the planning documents from regional planning agencies, counties, and cities in the indirect effects analysis area and by identifying the locations of existing and announced developments in that area.
- Second, interviews were held with officials in regional, county, and city planning departments and with real estate developers. These interviews yielded specific information about planned land-development projects, the consistency or inconsistency of the projects with existing land-use plans and policies, and the relationship (if any) between these real estate investments and the MVC project.

The land-use policies in the master plans that affect the indirect effects analysis area were discussed with the planning department personnel. These discussions followed the format of structured interviews using questionnaires that were mailed to them in advance. The interviews were conducted with these planning departments because they make the official land-use and zoning decisions for their city.

The interviews included discussions about how each jurisdiction's land-use plans either reflect or do not reflect the MVC roadway alternatives. If the land-use plans did reflect the roadway alternatives (this could depend on which MVC roadway alternative was examined), the main discussion focused on how the land use would change without the MVC roadway alternatives. If the land-use plans did not reflect the roadway alternatives, the main discussion focused on how the land use would change with the roadway alternatives.

Interviews with the major real estate development companies that are active in the indirect effects analysis area focused on their plans for further investments in the area and the potential for those investment decisions to affect—and be affected by—each MVC roadway alternative.

Summaries of these interviews with the cities and the developers are included in two technical reports (Parsons Brinckerhoff 2005a, 2005b). The major findings of the two technical reports are noted in this chapter.

24.3.4 Land-Use Changes from the Transit Alternative

Because of the extensive transit scenario planning by elected officials and planning staff during the Growth Choices process (see Chapter 3, Growth Choices), a different methodology was used to assess the indirect effects of the transit alternative on land use. The Growth Choices process allowed local officials to indicate the land-use patterns they would like to see implemented if the MVC transit alternative is built. The Growth Choices process resulted in a “Vision” scenario that includes a shift toward higher-density, transit-oriented land uses along 5600 West. According to the Growth Choices Vision Scenario, these land uses would be implemented in conjunction with a decision to develop a transit line along 5600 West.

Based on the Growth Choices Vision Scenario, the analysis of the indirect effects of the MVC transit alternative can best be expressed by comparing the traditional land-use patterns assumed in the current LRTP to the more transit-oriented land-use patterns in the Growth Choices Vision Scenario. The difference between the LRTP land use and the Growth Choices land use shows the effects of the transit alternative. This is the main difference between the two land-use forecasts.

24.3.5 Indirect Effects of the MVC Alternatives

The following approach was used to identify the potential indirect environmental effects of changed land-use growth resulting from each MVC alternative (including the No-Action Alternative):

- General areas of potential changed growth from the MVC alternatives were identified and located on GIS-based maps.
- Natural resources, major human-made facilities, and other constraints to development were identified on GIS-based maps.
- The general areas of indirect effects were compared to the locations of environmental resources to identify areas of potential impacts.

The analysis of the environmental impacts from project-influenced growth was performed at a qualitative level. The analysis identifies the areas where the project would increase development pressures and the environmental resources that could be affected as a result of those pressures. Given the uncertainties inherent in predicting the specific locations and amounts of future development, this analysis does not attempt to quantify the impacts on specific environmental resources that would be caused by project-influenced development.

24.4 Affected Environment

The affected environment in the MVC study area includes low-density suburban areas in the east and mostly vacant land in the west. Much of the area north and southwest of the MVC study area is undeveloped. The locations of growth potentially influenced by the project are controlled by local land-use policy as reflected in master plans and zoning. Master plans, sometimes referred to as comprehensive plans, provide recommendations for the future land-use development of a jurisdiction as well as for public facilities and services to support the new development. Zoning district maps, as part of a zoning ordinance, are intended to implement the future land-use plans. Therefore, zoning is the primary implementing mechanism that local jurisdictions have to control land use. Regional and state planning agencies do not have zoning authority.

Future development patterns in the MVC study area are expected to follow past and existing trends, which largely consist of low-density residential, commercial, and industrial development. These patterns result from the cumulative combination of infill development and new development on the periphery of already developed areas, strip commercial development along major roads, and more-concentrated commercial development at interchanges and transit stations.

This section describes existing master plans and development trends. Section 24.5, Environmental Consequences, analyzes the degree to which the existing trends would be affected by each MVC alternative, including the No-Action Alternative.

24.4.1 Planning Context

Land-use decisions are made by local governments based on local priorities at the time. The following sections describe the overall planning context in which the project would be built and in which any potential effects on land use would take place.

24.4.1.1 Local and County Master Plans

Most of the master plans of the cities and counties in the MVC study area follow the same concepts: continuation of existing trends (largely low-density residential, commercial, and industrial development), protection of environmental resources, concentration of commercial and higher-density uses near future transit stations, and concentration of automobile-oriented commercial and medium-density development near highway interchanges. The master plans of jurisdictions in the MVC study area assume total build-out of the developable land within their boundaries. The newest cities of Saratoga Springs and Eagle

Mountain in the Utah County portion of the MVC study area, which began as planned communities designed by development companies, are also promoting the traditional low-density pattern in the region.

At the county level, the master plans essentially support and follow the local governments' plans, since the unincorporated land areas in the county are interspersed within city boundaries and adjacent to them.

Many of the local jurisdictions are considering, or have begun implementing, developments with higher densities than the traditional single-family, large-lot residential developments. These developments include Daybreak in South Jordan and new developments along I-15 in Lehi (see Section 24.4.2.3, Major Existing and Proposed Developments). Nonetheless, the local master plans remain predominantly oriented toward low-density residential development.

See Chapter 4, Land Use, for detailed information about master plans in the affected jurisdictions in the MVC study area.

24.4.1.2 Metropolitan Planning Organizations

The two metropolitan planning organizations in the MVC study area, WFRC and MAG, are responsible for carrying out metropolitan transportation planning through a process that is established under federal law and is required as a condition of receiving federal transportation funds. Each metropolitan planning organization develops two planning documents: the transportation improvement program, which is a short-term funding program, and the LRTP, which sets transportation plans and policies over a 20-year period. The transportation improvement program and LRTP include both highway and transit elements. The transportation improvement program and LRTP are updated on a regular basis to reflect changes in population and employment forecasts, funding levels, and transportation priorities.

The current LRTP includes a wide range of transportation projects including widening many north-south roads and extending many east-west roads to the west. The LRTP also includes the West Valley and Mid-Jordan light-rail transit lines.

The metropolitan planning organizations have no land-use planning authority. However, as they develop transportation plans, the metropolitan planning organizations must develop forecasts about future land use. The land-use forecasts developed by the metropolitan planning organizations take into account the local governments' land-use plans as well as the population and employment forecasts from the Governor's Office of Planning and Budget. The land-use

forecasts used by the metropolitan planning organizations to develop the LRTP are commonly referred to as the “LRTP land-use forecasts.”

24.4.1.3 Growth Choices Regional Vision

As part of this project, a public regional visioning process was undertaken in 2003 and 2004, and the results of this process were evaluated for this indirect effects analysis. The Mountain View Growth Choices Study was facilitated by Envision Utah, an independent non-profit organization that encourages collaborative approaches to planning and growth issues in Utah. Participants in the Growth Choices process included representatives of state, regional, county, and local governments as well as non-governmental organizations and individual residents of the area (see Chapter 3, Growth Choices, for more details).

The Growth Choices process did not try to determine the impacts of specific projects. Instead, the Growth Choices process considered a range of future growth scenarios, each of which involved combinations of roadway improvements, transit improvements, and land-use changes. These scenarios were a Trend Scenario, which involved the continuation of existing plans; an Expansive Scenario, which involved greater emphasis on single-family homes, large lots, and automobile travel; and a Compact Scenario, which involved a greater emphasis on compact nodes of development adjacent to transit stations. While differing in their emphasis, each scenario involved major highway and transit improvements and assumed that the trend of substantial single-family home development would continue.

In March 2004, the Growth Choices process resulted in the adoption of a Voluntary Agreement and Vision Map. The agreement and map were approved by representatives of 10 local jurisdictions plus 12 stakeholder groups and individuals. The Growth Choices Vision includes a balanced transportation system that consists of transit and freeways as well as pedestrian-oriented, mixed-use town centers and corridors. One of the secondary objectives of the MVC project includes “support[ing] local economic development and growth objectives as expressed through locally adopted land-use and transportation plans and policies, including the principles reflected in the Growth Choices Vision...” (see Section 1.3.1, Purpose of the Project). This secondary objective of the project was used to refine the project alternatives, but was not used to determine whether an alternative was reasonable or not practicable.

The land-use elements of the Growth Choices Vision involved modifications to the land use assumed in the LRTP for Salt Lake County. The land use assumed in the Growth Choices Vision is referred to in this EIS as the “Growth Choices land use.” The Growth Choices land use is the same as the LRTP land use except that

it reflects increased density along 5600 West in order to support the transit alternative. This is the main difference between the two forecasts. These Growth Choices land-use forecasts and those prepared for the LRTP, expressed in population and employment totals by jurisdiction, are compared in Table 24.4-3, Comparison of 2005 Population and Employment in the MVC Study Area Traffic Analysis Zones with Projections for 2030 from LRTP and Growth Choices, on page 24-23. However, the Growth Choices land-use forecasts have not been incorporated into the LRTP forecasts.

24.4.2 Overview of Growth Trends

24.4.2.1 Recent Population and Urbanization Trends in Salt Lake and Utah Counties

The Salt Lake Valley is a rapidly growing metropolitan area. By 2000, the growth in population and urbanized land area had covered much of the developable land in the valley, including the MVC study area. This past development and the associated traffic congestion in the western Salt Lake Valley have led to the need for additional roadway and transit capacity in the MVC study area.

Salt Lake and Utah Counties have been growing rapidly since the 1970s, both in population and in the amount of vacant and agricultural land converted to urbanized uses. For example, Salt Lake County grew in population from about 459,000 in 1970 to about 726,000 in 1990, a 58% increase in 20 years or a 2.3% increase per year. The pace slowed slightly to a 2.1% increase per year in the next decade when the population increased to about 898,000 in 2000. Utah County grew almost twice as fast as Salt Lake County during this 30-year period. Utah County's population increased from about 138,000 in 1970 to about 264,000 in 1990, a 91% increase in 20 years or 3.2% per year. Its population increased to nearly 369,000 in 2000, a 40% increase since 1990 or 3.3% per year. A major portion of Utah County's growth was in its northern half, which borders Salt Lake County.

Keeping pace with population growth, the size of the urbanized areas in both counties has also grown: first in the eastern Salt Lake Valley, more recently in the west and south (including in the MVC study area), and also in the southwestern parts of the indirect effects analysis area. Figure 24-2, Urban Development 1972–2004, shows the approximate extent of urbanization in the valley in relation to the MVC study area in 1972, 1990, and 2004. NASA satellite imagery provided by the University of Utah Energy and Geoscience Institute was used for this analysis. The extent of urbanization was identified by examining the near-infrared reflection from urban development; this development is shown by

the cross-hatched area on each figure. Based on a measurement of the cross-hatched area, 129 square miles of land in the Salt Lake Valley had been urbanized by 1972. This area had doubled to 260 square miles by 1990, a 102% increase in 18 years or a 3.9% increase per year. By 2004, 329 square miles had been urbanized, a 27% increase in 14 years or a 1.7% increase per year. The urbanization trends roughly matched the population growth trends.

In 1972, the only parts of the MVC study area that were urbanized were in the West Valley City–Magna corridor in Salt Lake County and in the historic town centers of Herriman in Salt Lake County and Lehi in Utah County. By 1990, urbanization in the MVC study area had spread southerly to the West Jordan–South Jordan border in Salt Lake County as well as along I-15 in Lehi, American Fork, and Pleasant Grove in Utah County. By 2004, urbanization in the MVC study area had extended farther west in Salt Lake County and crossed over the MVC alternatives east to west, particularly in West Jordan, South Jordan, Herriman, and Bluffdale. In Utah County, Lehi and its neighboring cities to the east expanded greatly. To Lehi’s west, the new cities of Saratoga Springs and Eagle Mountain began developing rapidly.

Along with this growth came the development of the valley’s freeway system. The north-south I-15 was constructed in the center of the valley during the middle to late 1960s. The east-west I-80 was constructed in the north of the valley in the late 1980s. The beltway (I-215) was constructed during the late 1980s and early 1990s. These freeways continue to serve the developed areas of the valley. As the following section shows, a faster growth rate in the MVC study area is projected compared to the slower historic growth rate in the same area.

24.4.2.2 Amount of Projected Growth

The following discussion pertains to the portions of affected cities and counties in the MVC study area only, not the entire indirect effects analysis area, because of the availability and consistency of data at the traffic analysis zone level in the MVC study area. For example, there are no projections at the traffic analysis zone level for the northwest quadrant of Salt Lake City since master planning has just begun recently for this largely undeveloped and vacant area. However, there are projections at the traffic analysis zone level for Eagle Mountain and Saratoga Springs.

The projections from the Governor’s Office of Planning and Budget, as allocated at the traffic analysis zone level by the metropolitan planning organizations and the local governments, show high rates of population and employment growth in the portions of affected jurisdictions that are within the MVC study area. The projections indicate that there will be over 307,000 more people and 171,000



more jobs in 2030 than in 2005 in both counties. Population is projected to grow from 246,000 in 2005 to 574,000 in 2030, a 133% increase in 25 years or a 5.3% increase per year. Employment is projected to substantially increase from 79,999 in 2005 to 255,000 in 2030, a 215% increase or 8.6% more jobs per year. The Governor's Office projects the overall amount of population and employment growth based on demographic and economic trends; the total amount of growth at the county level does not depend on the MVC project or any other specific transportation improvement. About 30% of this net population growth would be expected to be accommodated by the 59,000 housing units already permitted in nine real estate developments in Salt Lake and Utah Counties in the MVC study area (see Table 24.4-1, Major Planned Developments in Salt Lake County, and Table 24.4-2, Major Planned Developments in Utah County, beginning on page 24-17).

In absolute terms, the greatest amount of growth in the MVC study area would occur in Salt Lake County. In percentage terms, growth would be far higher in the Utah County portion of the MVC study area, which is currently more rural. Salt Lake County currently includes 90% of the population of the MVC study area. However, the Salt Lake County proportion is projected to decrease from 90% in 2005 to 86% in 2030 with Utah County's share increasing from 10% to 11%. Similarly, Salt Lake County's proportion of the jobs in the entire MVC study area would decrease from 95% in 2005 to 89% in 2030 with Utah County's share increasing from 5% to 11%. Despite these southerly shifts in projected growth, Salt Lake County would continue to be the major origin and destination for commuter travel in the MVC study area, and a large portion of northern Utah County residents would continue to travel to and from jobs in Salt Lake County.

The projections from the Governor's Office of Planning and Budget also show differences in the rates of growth between Salt Lake County cities, Utah County cities, and the MVC study area. Salt Lake County cities are projected to grow 44% between 2005 and 2030 compared to 123% for the entire Salt Lake County portion of the MVC study area. In contrast, Utah County cities are projected to grow 254% between 2005 and 2030 compared to 226% for the entire Utah County portion of the MVC study area. This difference reflects the fact that Salt Lake County cities are much more built out than the cities in the MVC study area in Utah County. It also shows that cities in Utah County are growing faster than the Utah County portion of the MVC study area.



24.4.2.3 Major Existing and Proposed Developments

Within and near the MVC study area, a number of major private developments are underway or have been proposed (see Figure 24-3, Locations of Major Developments and Permitted Housing Units). These developments were identified by the developers and jurisdictions that were interviewed and provide insight into the development trends in the MVC study area and the economic forces that are driving development. The most important known changes in land use in the next 25 years in the MVC study area include the following:

- Nearly 68,000 housing units have been permitted in 19 separate real estate developments in seven cities.
- Over 3 million square feet of commercial floor space have been approved for Traverse Mountain in Lehi (Utah County).
- Salt Lake City is planning to accommodate major industrial and commercial development growth in the MVC study area south of I-80 with a total of 35,300 jobs, 16,300 more than at present.
- West Jordan and South Jordan (both in Salt Lake County) are planning for major transit-oriented developments near stations on the proposed Mid-Jordan light-rail transit line (a separate project from the MVC).
- Kennecott Land is developing Daybreak in South Jordan, a 4,000-acre planned community with 20,785 residential units and 9 million square feet of commercial/industrial development in Salt Lake County (construction began in 2004).
- Three master-planned, mixed-use communities have been permitted near I-15: Independence at Bluffdale (Salt Lake County) and Traverse Mountain and Thanksgiving Point in Lehi (Utah County). These communities have a combined total of 11,920 housing units and over 3 million square feet of commercial space.
- Two large planned communities in northwest Utah County are rapidly developing: Saratoga Springs and Eagle Mountain. Only a small portion of their land area is within the MVC study area.



In addition, the following large developments are planned for areas that are partly or entirely outside the MVC study area but within the indirect effects analysis area:

- Salt Lake City is preparing a sustainable community plan for its 19,000-acre northwest quadrant (2100 South to north city limit and west of the Salt Lake City International Airport to about 8800 West). The northwest quadrant planning area north of I-80 is outside the MVC study area but within the indirect effects analysis area. In June 2007, a “Visioning Document” for the northwest quadrant was published reflecting the results of the Visioning Workshop held in January 2007.
- Saratoga Springs and Eagle Mountain have already been master planned for total build-out (development of available and suitable land). Eagle Mountain has already permitted 35,000 housing units within its boundaries. Most of the land area of these two cities is outside the MVC study area, and a portion is inside the indirect effects analysis area.

The developments mentioned above are currently under construction in South Jordan, West Jordan, Bluffdale, Herriman, Salt Lake City, Saratoga Springs, Eagle Mountain, and Lehi. Daybreak in South Jordan has reserved right-of-way for the MVC project and has planned 9 million square feet of commercial space. Saratoga Springs is counting on the Pony Express Road to be upgraded and extended easterly to provide access to the MVC.

See Table 24.4-1 and Table 24.4-2 below for information about the proposed developments within and near the MVC study area based on interviews with the developers. Also see Figure 24-3, Locations of Major Developments and Permitted Housing Units.

Other major developments are proposed for areas that are outside the indirect effects analysis area. These developments are unlikely to be affected by the project but provide further indication of the overall growth trends in the region.

- Kennecott Land plans to develop 42,000 acres of its 75,000 acres along the west bench of the Oquirrh Mountains in Salt Lake County; this area is located 3 miles to 4 miles west of the project. Kennecott plans to develop this area by employing concepts for master-planned communities and focusing on future transit that would connect to the community. Developing this area could result in as many as 200,000 single-family and multi-family units.
- Property Reserves, Inc., an LDS Church–affiliated company, owns farmland in Salt Lake City, Bluffdale, and Lehi which may be developed in the short term.





Table 24.4-1. Major Planned Developments in Salt Lake County

Development Name	Location(s)	Developer/ Land Holder	Single-Family Housing Units	Multi- Family Units	Commercial	Comments
Bloomfield Estates	West Jordan	Ivory Homes	160 units	No	No	Project is almost complete.
Bloomfield Farms	West Jordan	Ivory Homes	80 units	No	No	Project is complete.
Bloomfield Heights	West Jordan	Ivory Homes	106 units	No	No	Project is under construction. Units are on 0.25-acre or greater lots.
Daybreak	South Jordan	Kennecott Land	4,000 acres, 20,785 single- and multi-family units, 5–25 units/acre	Yes	9 million square feet (retail and office) near MVC alternatives.	Began construction in 2004. 1,500 units sold, 1,200 occupied. 10- to 15-year build-out. Goal of 1,000 units/year.
Herriman “Downtown”	Herriman	Sorenson Development	Yes, but higher density, 5–10 units/acre	Yes	350-acre site. Planning a transit-oriented development concept.	Possible future downtown area for Herriman. Anticipated start 2017.
Independence at Bluffdale	Bluffdale	Porter’s Point, LLC	2,371 units, 580 acres, 7.2 units/acre, 3.3 persons per household = 11,880 population	718 apartments, 503 town homes	22 acres neighborhood commercial, 18 acres regional commercial.	Expect to break ground in 2007; build-out in 5–7 years. \$170,000–\$250,000 single-family detached units.
Riverbend	Salt Lake City	Riverbend, LLC	2,000 single- and multi-family units, 330 acres	Yes	Commercial and retail.	
Rosecrest	Herriman and Bluffdale	Sorenson Development	5,500 units, 2.6 units/acre	12–14 units/acre	1,500–5,000 jobs. Commercial planned around project interchange.	2,300-acre development. Anticipated start 2012. Anticipated completion 2015.
Stone Creek	West Jordan	Peterson Development	579	386	Yes	Mixed-use development on 300 acres.



CHAPTER 24: INDIRECT EFFECTS

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Development Name	Location(s)	Developer/ Land Holder	Single-Family Housing Units	Multi- Family Units	Commercial	Comments
Suburban Land Reserve/TBD	Salt Lake City – about 3,761 acres north of I-80 in the northwest quadrant	Suburban Land Reserve/ TBD	In planning; number of units has not been determined	In planning; number of units has not been determined	In planning; has not been determined.	Salt Lake City is in the process of master-planning this area to conclude in 2008.
West Bench	Oquirrh Mountains, several municipalities	Kennecott Land	200,000 single- and multi-family units	Yes	59 million square feet of commercial (8.1 million square feet retail, 25.8 million square feet office, and 24.7 million square feet industrial).	Master-planned community. 75,000 acres total and about 42,000 acres proposed for development. In zoning process and expect development to begin in 2010–2012.
TBD = to be determined						

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Table 24.4-2. Major Planned Developments in Utah County

Development Name/Holding Company	Location(s)	Developer/Land Holder	Single-Family Units	Multi-Family Units	Commercial	Comments
Eagle Mountain	Eagle Mountain	Eagle Mountain Properties (John Waldon)	22,390 units permitted, 15–20 years, 150–200 units/year, 3–4 units/acre	Yes	Yes	Plans major general aviation/air freight airport and related businesses.
Eagle Mountain	Eagle Mountain	Patterson Construction	3,000 units, 2.6 units/acre, building for 10 years	No	No	Ongoing
Frank Gehry project at Point of the Mountain	Lehi	G Code Ventures, LLC	None	2,500 multi-family units	Yes	Unique mixed-use project with hotel, 10,000-seat basketball arena, and extensive commercial area. Anticipated start middle to late 2008.
Thanksgiving Meadows	Lehi	McArthur Homes	147 single-family units	180 multi-family units	No	
Thanksgiving Point	Lehi	Thanksgiving Point Development Co.	142 single-family units, \$400,000+	186 multi-family units, \$300,000+	Yes	Proposed Mountainland Applied Technology school and large business park campus developments. Resort community zoning, including retail, petting zoo, fairgrounds, golf course, and extensive gardens.
Traverse Mountain	Lehi	Mountain Home Development Group	8,000 single- and multi-family units.	Yes	Commercial areas have been designated that could allow up to 3 million square feet of commercial floor space, but no formal approvals have been given.	Cabela's is open; however, proposed IKEA moved to another location.



CHAPTER 24: INDIRECT EFFECTS

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Development Name/Holding Company	Location(s)	Developer/ Land Holder	Single-Family Units	Multi-Family Units	Commercial	Comments
Various Names (Cranberry Farms, Colony Pointe, Ivory Ridge)	Lehi	Ivory Homes	982 units, price range \$250,000–\$800,000	288 multi-family homes (town homes and mixed use units) starting at \$260,000	2 commercial pads.	
Various Names (Highlands, Highlands on the Green, Northmoor/ Southmoor, Meadow Ranch V, Circle 5 Ranch)	Eagle Mountain	Eagle Mountain Links, LLC	Ranges from 1-acre lots to 10 dwelling units/acre	Yes	No	832 units or lots, 20,000 population. 60% commute to Salt Lake County. \$180,000–\$500,000 (condos \$120,000).

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24.4.3 Growth Trends and Projections by Subarea

The following sections describe growth trends and projections in each of the counties and cities in the MVC study area. For each of these jurisdictions, Table 24.4-3, Comparison of 2005 Population and Employment in the MVC Study Area Traffic Analysis Zones with Projections for 2030 from LRTP and Growth Choices, on page 24-23 provides a comparison of current (2005) and future (2030) population and employment levels. For 2030, the table shows the population and employment data for both the LRTP land-use forecast and the Growth Choices land-use forecast.

As noted in Section 24.4.1.3, Growth Choices Regional Vision, the Growth Choices forecasts and the LRTP forecasts have similar overall population and employment levels for the two counties. The main difference is that, for Salt Lake County, the Growth Choices forecasts assume increased densities along 5600 West in order to support the viability of transit service in that location. This assumption resulted in a redistribution of the future growth within Salt Lake County and Utah County compared to the LRTP forecasts. For Utah County, the Growth Choices projections are similar to the LRTP projections because the 5600 West transit line would not extend into Utah County.

24.4.3.1 Salt Lake County

Portions of nine cities and unincorporated parts of Salt Lake County are in the MVC study area. These nine cities are Salt Lake City, West Valley City, Taylorsville, West Jordan, South Jordan, Riverton, Draper, Herriman, and Bluffdale. Only small portions of Taylorsville and Draper are located in the MVC study area, and they are not analyzed in this chapter. As of 2005, the population of the Salt Lake County portion of the MVC study area was 220,000. The population of this area is expected to grow rapidly, so that by 2030, the population is expected to reach over 491,000 (LRTP projections) or nearly 491,000 (Growth Choices projections). Using the LRTP projection only, a high overall growth rate of 123% (3.2% per year) is expected.

By 2030, a majority of the population in the Salt Lake County portion of the MVC study area would continue to be concentrated in the northern part of the MVC study area (in unincorporated parts of the county, West Valley City, and West Jordan). This area would have a population of nearly 333,000 in 2030, which is 68% of the population in the Salt Lake County portion of the MVC study area. This percentage is substantially lower than the current level (81% in 2005). However, while the northern portion of the MVC study area would grow substantially in absolute terms, the projections indicate faster growth rates in the

more rural but developing southern parts of the county. See Table 24.4-3 below for population and employment data and projections in the MVC study area.

Employment projections indicate faster growth in jobs than in population in the Salt Lake County portion of the MVC study area. Employment is expected to grow to over 227,000 according to the LRTP projections, up from about 75,000 in 2005. This is a tripling of employment by 2030 or a 4.4% increase per year. Almost half (46%) of the jobs would be in Salt Lake City and West Valley City (52% using the Growth Choices projection). These cities have large parcels of strategically located land that is desirable for industrial and commercial purposes. These parcels are highly accessible because they are near many of the region's major transportation facilities: the Salt Lake City International Airport, existing major highways (I-80 and SR 201, both of which have easy connections to I-15 and downtown Salt Lake City), and primary cross-state railroads that have railroad intermodal facilities in both the east-west and north-south directions.

In 2030, West Jordan would be the third-largest employment center in the MVC study area with over 38,000 jobs. This area would become more accessible due to the Mid-Jordan light-rail transit line and the MVC.



Table 24.4-3. Comparison of 2005 Population and Employment in the MVC Study Area Traffic Analysis Zones with Projections for 2030 from LRTP and Growth Choices

Area	LRTP (2005)		LRTP (2030)		Percent Change in LRTP (2005–2030)		Growth Choices (2030)	
	Population	Employment	Population	Employment	Population	Employment	Population	Employment
Salt Lake City	29	19,027	34	35,368	17%	86%	290	51,275
West Valley City	72,451	31,358	90,915	69,646	25%	122%	106,675	58,392
Salt Lake County (unincorporated county)	64,228	9,269	163,526	26,510	155%	186%	130,553	26,950
Taylorsville	7,097	1,064	8,472	1,328	19%	25%	5,463	1,058
West Jordan	42,738	10,202	78,565	38,540	84%	278%	95,104	44,052
South Jordan	6,896	198	43,831	24,919	536%	12,485%	49,103	21,631
Riverton	8,373	797	23,148	15,505	176%	1,845%	31,153	12,159
Herriman	8,302	237	34,236	6,325	312%	2,569%	42,992	5,145
Bluffdale	5,711	1,386	43,222	6,546	657%	372%	30,066	5,114
Draper	4,806	1,641	5,543	3,293	15%	101%	95	1,398
Total for MVC study area in Salt Lake County	220,631	75,179	491,492	227,980	123%	203%	491,494	227,174
Saratoga Springs	2,942	234	16,012	3,794	444%	1,521%	17,215	1,537
Lehi	14,234	3,358	26,210	10,169	84%	203%	17,958	4,840
Utah County (unincorporated county including American Fork and Lindon)	2,361	136	14,372	8,849	509%	641%	21,422	16,207
Eagle Mountain ^a	5,625	76	25,513	4,698	354%	6,082%	25,513	4,698
Total for MVC study area in Utah County	25,162	3,804	82,107	27,510	226%	623%	82,108	27,282
Total for MVC study area	245,793	78,983	573,599	255,490	133%	223%	573,602	254,456

^a Eagle Mountain is mostly located outside the MVC study area but was included in this table and chapter because the city is within the indirect effects analysis area. The totals for the MVC study area in Utah County do not include the Eagle Mountain projections.



South Jordan, with 24,000 jobs (up from 198 in 2005), would experience the greatest increase in employment, largely due to full build-out of the Daybreak development's industrial and commercial area to include 9 million square feet of floor space, three times larger than the existing "big-box" complex at Jordan Landing in West Jordan. The unincorporated parts of the county would have 31,000 jobs near West Jordan's and South Jordan's employment centers.

An issue facing some of these communities in Salt Lake County is how to accommodate these growth projections given the limited amount of remaining developable land (as measured using aerial photographs). This issue could be resolved through one or more of the following strategies:

- Increased density could accommodate more growth if the communities decide to permit development at higher densities than what is currently allowed. This would be consistent with a recent trend of allowing higher densities in the indirect effects analysis area, especially for several large planned mixed-use communities (see Table 24.4-1, Major Planned Developments in Salt Lake County, and Table 24.4-2, Major Planned Developments in Utah County, above).
- If densities are not increased, then increased development beyond the indirect effects analysis area could accommodate more growth, provided that growth extends to adjacent communities with developable land, especially where land values are lower.
- Increased redevelopment of underdeveloped land could accommodate more growth if land values in the indirect effects analysis area increase sufficiently. Alternately, increased land values could slow growth.

The way in which this issue is addressed would depend on future decisions by the cities and counties in the MVC study area through their planning and zoning authorities and processes.

The land acreages referenced in the following sections are based on measurements from maps that were developed from 2003 aerial photographs for the MVC project. These data were compared to the latest available aerial photographs by the U.S. Geological Survey (1993 and 1997). Other aerial photographs were reviewed for some areas at the western edges of the MVC study area. Existing land-use conditions by city are discussed in Section 4.3, Affected Environment, of Chapter 4, Land Use.

24.4.3.2 Salt Lake City

The Salt Lake City portion of the MVC study area is about 38% built out. Only 3,600 acres of the 9,700 acres in the MVC study area were developed in 2003, despite its location near existing transportation facilities and downtown. Further, the recent pace of development has been relatively slow; the amount of developed land increased by 3.4% between 1997 and 2003. Constraints such as wetlands, mud flats, and evaporation ponds in the area and the availability of large developable parcels elsewhere might have slowed development here.

The major environmental resources in the Salt Lake City portion of the MVC study area are wetlands and a migratory bird habitat area. The area also includes a large landfill. Most of these resources are located west of 5600 West.

For 2030, the LRTP projects 35,000 jobs for the Salt Lake City portion of the MVC study area (an increase of 86% over 2005, or a 2.5% increase per year), while Growth Choices land use projects nearly 51,000 jobs for the same area (an increase of 170% over 2005, or a 4.0% increase per year). Employment in 2005 was 19,000. The projected population growth in this part of Salt Lake City is low, consistent with a policy that discourages housing there due to noise from the Salt Lake City International Airport.

Initially, future development is likely to take place east of 5600 West because three east-west roads are proposed to be improved independent of the MVC project. These roads are 700 South, 1525 South, and 2100 South, all of which are between 5600 West and Bangerter Highway. The area of development is expected to be constrained by environmental resources including wetlands and a migratory bird habitat area as well as a large landfill. Most of these constraints are west of 5600 West.

Salt Lake City expects that an area of the city west of the airport and north of I-80 known as the northwest quadrant will be developed by 2030. No projections exist for this area since master planning has not yet begun. The City annexed this land expecting future development. Most of this land is owned by Zion Securities, a land-holding agency of the LDS Church. Because of its proximity to the project and the City's plans for future development, the northwest quadrant has been included in the indirect effects analysis area.

The MVC freeway alternatives are not shown on the City's master plan. The City prefers improved arterials rather than a freeway to provide better access to adjacent parcels that are zoned for major distribution industries and offices.

24.4.3.3 West Valley City

The West Valley City portion of the MVC study area is 71% built out—the highest proportion of any city in the MVC study area. Accordingly, the city is developing relatively slowly; the amount of developed land increased by 4.6% between 1997 and 2003. Development would be further constrained by public facilities, major utilities, the ATK site (an existing military testing site), and a migratory bird habitat area. About 4,700 acres were undeveloped in 2003 out of a total of over 16,000 acres.

The City expects density to increase along 5800 West at 3500 South, 2700 South, and 5400 South and also expects large-lot subdivisions farther west of the MVC project. The locations for new development are constrained by the existing built-up portions of the city. New growth is expected to fill in existing developed areas, including suitable conveniently located parcels that would be made more accessible by the MVC project.

There are two planned east-west roadway improvements in West Valley City that are independent of the MVC project. One is along 2100 South between 5800 West and Bangerter Highway and at the new interchange with 7200 West; the other is 3500 South, the city's main street, between Bangerter Highway and 7200 West. The West Valley light-rail transit line (a separate project from the MVC) is planned along 3500 South. These roadway and transit improvements would likely influence higher-density and more commercial development near the interchanges, intersections, and transit stations. The City already plans to increase residential densities up to 50 housing units per acre along the planned West Valley light-rail transit line.

The City has preserved the MVC right-of-way for the MVC project in its master plan.

24.4.3.4 Unincorporated Salt Lake County

The unincorporated areas of Salt Lake County are attractive for development. These areas are along the county's western edge from I-80 in Salt Lake City to Herriman; the largest unfragmented land areas are adjacent to Salt Lake City, West Valley City, Herriman, and Bluffdale. There are also pockets of unincorporated land throughout the MVC study area including the developed townships of Magna and Kearns. Most of the projected growth is expected near these cities.

According to the LRTP, the population in the unincorporated areas of the county in the MVC study area is projected to increase from 64,000 in 2005 to 163,000 in 2030, an increase of 155% or 3.7% per year. Employment is projected to increase

faster from about 9,200 in 2005 to 26,500 in 2030, a 188% increase or 4.2% per year. About 3,200 acres of undeveloped land remain out of a total of 190,100 acres in unincorporated Salt Lake County. Camp Williams, a National Guard installation, occupies 3,100 acres in unincorporated Salt Lake County of the 190,100 acres and is assumed to be unavailable for development.

To the west of the indirect effects analysis area, Kennecott Land owns 93,000 acres of developable land along the bench of the Oquirrh Mountains in unincorporated Salt Lake County, which includes 18,000 acres outside the county. About 75,000 acres are within Salt Lake County. Kennecott has no plan to develop the 18,000 acres outside Salt Lake County. Kennecott plans to develop a series of linked communities along the bench in Salt Lake County. The project has not begun, but Kennecott Land expects to begin in about 2010 to 2012. The first phase of development will occupy 1,000 acres to 2,000 acres and will have a similar mix of uses as in Daybreak in South Jordan. According to Kennecott representatives, decisions about that development do not depend on the MVC project (Parsons Brinckerhoff 2005a). Accordingly, Kennecott's holdings on the Oquirrh Mountains bench are not included in the indirect effects analysis area.

24.4.3.5 West Jordan

West Jordan is about 63% built out—the second-highest proportion of the cities in the MVC study area. The area is developing quickly; the developed land area increased nearly 24% between 1997 and 2003. About 4,600 acres out of a total 12,400 acres remained undeveloped in 2003. This rate of land conversion is expected to be maintained to accommodate the projected growth in population and employment.

According to the LRTP, population in West Jordan is expected to increase from about 42,000 in 2005 to 78,500 in 2030, an 87% increase or 2.5% per year. The Growth Choices process set the 2030 population at 95,000, a 126% increase or 3.3% per year.

The City's master plan protects stream valleys from development because they function as wildlife travel corridors. Because few wetlands exist within the city limits, development would not be constrained by this resource.

The City has planned three transit-oriented developments for the Mid-Jordan light-rail transit line, including a major town center just south of the West Jordan City Hall at 8000 S. Redwood Road. In August 2005, the City developed a transit-oriented development ordinance to add to its zoning ordinance.

The City has reserved the right-of-way for the MVC project.

24.4.3.6 South Jordan

The South Jordan portion of the MVC study area is largely undeveloped, especially its western half. However, construction in this area began in 2004 for a large planned community called Daybreak, which is being developed by Kennecott Land. The City and Daybreak have preserved the right-of-way for the MVC project. Daybreak is a planned community designed according to “New Urbanism,” or more-compact development principles, rather than the current low-density development trend. About 20,785 single-family and multi-family housing units are planned on 4,000 acres. Daybreak is being built at densities ranging from 5 to 25 housing units per acre, which is higher than typical densities in the Salt Lake Valley. Nine million square feet of commercial and industrial floor space are also planned as part of the Daybreak development.

In 2005, South Jordan had a population of 6,800 in the MVC study area; it is projected by the LRTP to grow to nearly 43,000 in 2030, a 532% increase or an increase of 7.4% per year. Employment would increase from 198 in 2005 to 24,900 in 2030 based on LRTP projections. South Jordan was 26% built out in 2003 with about 5,000 acres undeveloped (out of a total of about 7,100 acres).

South Jordan is projected to experience a major increase in employment as Daybreak’s industrial and commercial developments are built out. That development includes 9 million square feet of floor space, an area three times larger than the existing “big-box” complex at Jordan Landing in West Jordan. Due largely to this development, employment in South Jordan is projected to increase from 198 jobs in 2005 to 24,000 jobs in 2030 according to the LRTP.

24.4.3.7 Riverton

Riverton’s land use is predominantly low-density, single-family residential and rural. In 2005, the city had about 8,300 residents, and this number is projected to increase to 23,100 by 2030. Similarly, jobs are projected to increase from 797 in 2005 to 15,500 in 2030. In 2003, Riverton was over half built out (52%) and had about 1,300 acres that were undeveloped.

The City has not signed the Growth Choices Agreement and has not changed its zoning to accommodate the Agreement.

24.4.3.8 Herriman

Herriman's 2005 population of 8,300 is projected to increase to 34,200 in 2030. Its employment base is projected to increase from 237 in 2005 to 6,300 in 2030. Between 1997 and 2003, developed acreage increased from 900 to 2,400, an increase of 167% in 6 years. In 2003, Herriman was 30% built out with nearly 2,900 acres undeveloped. (Another 2,500 acres in the city were not covered by the aerial photographs, so no data were available for that area.)

Herriman has not signed the Growth Choices Agreement, but its zoning has been changed to accommodate the highway and transit components of the MVC project in accordance with the Growth Choices Vision. The City has already rezoned the areas around the highway interchanges for higher densities and is planning to adjust planned land uses to support a future transit station. Herriman's plans for future growth assume implementation of the MVC project and are intended to complement both the highway and transit elements.

24.4.3.9 Bluffdale

Bluffdale's population of about 5,700 in 2005 is projected to increase to almost 43,000 in 2030. Its employment base is projected to increase from 1,386 to 6,500 during the same period. In 2003, the city was 35% built out with 3,700 acres undeveloped. (There were no aerial photographs for an additional 2,800 acres in the city.) Bluffdale's developed land area increased by less than 4% between 1997 and 2003.

Sorenson Development Company plans to build a 2,300-acre development in both Bluffdale and Herriman called Rosecrest. This development would include 5,500 housing units at an average density of 12 to 14 units per acre, which is much higher than the typical housing density in Bluffdale. Rosecrest would also include space for commercial and industrial businesses that would provide 1,500 to 5,000 jobs. This commercial and industrial development is planned for an area near the proposed Porter Rockwell Boulevard interchange with I-15 (which is included as part of the Southern Freeway, 2100 North Freeway, and Arterials Alternatives).

24.4.3.10 Utah County

The Utah County portion of the MVC study area includes portions of two cities (Saratoga Springs and Lehi) as well as unincorporated parts of the county. This area of the county is experiencing rapid growth and development, partly because of its large tracts of inexpensive land and the high demand for affordable housing. The new cities of Eagle Mountain and Saratoga Springs have had the highest growth rates.

The northern part of Saratoga Springs is in the MVC study area, and Eagle Mountain is west of the MVC study area. Even though Eagle Mountain is not inside the MVC study area, the community would be affected by the project. Therefore the indirect effects analysis area extends beyond the MVC study area to include portions of both Saratoga Springs and Eagle Mountain within 5 miles of an MVC interchange.

According to the developers interviewed, the increasing traffic congestion on major roads (SR 73 and SR 68) has not slowed development or house sales in Eagle Mountain and Saratoga Springs (Parsons Brinckerhoff 2005a). According to representatives from Eagle Mountain, most people in that city drive to work, and about 60% of the population of Eagle Mountain works in Salt Lake County (Parsons Brinckerhoff 2005b). As a result, SR 73, the only east-west route that connects I-15 with areas to the west, has become congested, especially in Lehi. Redwood Road (SR 68) is also experiencing congestion. Increased congestion is expected to occur at the I-15 border of the MVC study area because four large developments in Bluffdale and Lehi would add over 15,000 housing units, and over 3 million square feet of retail space would be added by retail stores such as the Cabela's sporting goods store (which began construction in March 2005 and opened in 2006) and Target big-box stores.

24.4.3.11 Unincorporated Utah County

There are about 11,600 acres of unincorporated land in the Utah County portion of the MVC study area. Of these, 1,000 acres were developed in 2003. Of the 10,600 undeveloped acres, Camp Williams occupies over 1,300 acres in Utah County, leaving 9,600 acres available for development. The population projection for this area is over 14,000 in 2030. Over 8,000 jobs are projected to be located in new commercial developments along Redwood Road west of Lehi and along the west side of I-15 south of American Fork.

The MVC project has not been adopted by Utah County and is not included in the County's general plan.

24.4.3.12 Lehi

Lehi is a historic city with a relatively dense settlement pattern in its core and newer, lower-density developments at its periphery. Within the city, undeveloped land was converted to developed land at a high rate—from 2,300 acres in 1997 to 5,000 acres in 2003, a 117% increase or 12.9% per year. Lehi has 2,400 acres in the MVC study area that are undeveloped. The projected 2030 population of the portion of Lehi in the MVC study area is over 26,000.

In addition to development in the MVC study area, Lehi is experiencing and planning for further growth in parts of Lehi outside the MVC study area. Specifically, Traverse Mountain and Thanksgiving Point—which are east of the MVC study area near I-15—are expected to include substantial residential, commercial, and retail development.

- Lehi City has permitted 8,000 housing units and 3 million square feet of retail space on 3,000 acres at Traverse Mountain, which is east of I-15 and outside the MVC study area. Ongoing and planned development in this area includes houses, a church, and a large Cabela's sporting goods store (which opened in 2006). Retail businesses in Traverse Mountain are expected to attract 4 million visitors a year.
- Thanksgiving Point is farther north along the west side of I-15. Within the MVC study area, Thanksgiving Point is planning to add about 325 housing units and office space for 1,100 more employees to its current mix of "destination resort" uses (garden, farm country, museum, cinemas, shops and restaurants, and golf course). Thanksgiving Point attracts about 1 million visitors a year.
- Ivory Homes plans to add about 350 single-family housing units in West Jordan (in Salt Lake County) and 1,270 single-family and multi-family units in Lehi (in Utah County).

None of these developments is the result of the MVC project. Rather, they are being developed in response to strong market demand and the planned improved highway and commuter-rail facilities in the I-15 corridor, a separate project from the MVC. Both Traverse Mountain and Thanksgiving Point are planning transit-oriented developments to take advantage of future commuter-rail service in the I-15 corridor.

Lehi has included in its master plan the east-west arterial improvements (for example, 2100 North and 1900 South) that were recommended in the North Valley Connectors Study (MAG 2002). These improvements closely correspond to the Arterials Alternative that is being considered in this EIS.

24.4.3.13 Eagle Mountain

The relatively new city of Eagle Mountain (which was founded in about 1996) is located just outside the MVC study area. Given the potential for the project to affect future development in Eagle Mountain as a whole, the indirect effects analysis area extends beyond the MVC study area to include a portion of Eagle Mountain. By 2030, the Eagle Mountain area will have over 25,000 residents and nearly 5,000 jobs.

Development, which consists primarily of single-family homes, is scheduled at a rapid pace. About 500 lots a month (0.56 acre each) were approved between January 2004 and February 2005—nearly 6,900 lots covering almost 3,900 acres (Eagle Mountain Planning Department 2005). There appear to be no environmental constraints to prevent further development; the topography is flat and there are ample groundwater resources. The original owner of Eagle Mountain's land and water rights owns 7,000 acres and plans to develop it at 3 to 4 units per acre. Nearly 22,400 housing units have been permitted. The site includes an airport which would be used for general aviation, for air freight, and as a catalyst for a major aviation-related business park.

Also in Eagle Mountain, Patterson Construction is permitted to build 3,000 single-family housing units at 2.6 units per acre on over 1,100 acres. Eagle Mountain Links has built a mixed-use development including a golf course called the Ranches, which is built at higher densities of 5 to 10 units per acre. As these developments are built out over the next 10 to 15 years, increased traffic on the limited roadway network in the area (specifically SR 73) is likely to cause increased traffic congestion on those routes.

The City of Eagle Mountain's general plan includes the east-west arterial upgrades that were recommended in the North Valley Connectors Study.

24.4.3.14 Saratoga Springs

Saratoga Springs is another rapidly growing and relatively new city. It had only 81 developed acres in 1997; in 2003 that number had increased to over 1,400 acres, a 1,628% increase. In 2003, it was 30% built out with nearly 3,300 acres undeveloped. Projections for 2030 indicate that about 16,000 people would live in this part of the MVC study area and 3,700 jobs would be provided.

Constraints to growth in Saratoga Springs include the Jordan River floodplain, wetlands, the steep slopes of the foothills of the Oquirrh Mountains, and Agriculture Protection Areas. The city includes farmland owned by the LDS Church and other farmland, but increasing development pressures could cause the conversion of many farmlands to residential uses and other purposes.

24.4.4 Planned Developments in Other Areas

24.4.4.1 West Bench

Kennecott Land owns 75,000 acres of developable land, most of which is outside the MVC study area and the indirect effects analysis area. Kennecott's Daybreak development is located along the bench of the Oquirrh Mountains on the west side of the Salt Lake Valley. Kennecott plans to develop a series of linked communities along the bench. The development of this land largely depends on separate projects that will be developed in the future, such as a future expansion of SR 111. Development is anticipated to begin in 2010–2012.

24.5 Environmental Consequences

The discussion in Section 24.4, Affected Environment, makes clear that there likely will be substantial growth throughout the MVC study area even if the No-Action Alternative is selected and the MVC project is not built. This growth is driven by economic and demographic factors that operate independently of the MVC project or any specific transportation facility. Therefore, when analyzing the indirect effects of the MVC project, it is critical to distinguish between development that would occur even if the No-Action Alternative is selected and development that would occur only if one of the MVC action alternatives is selected.

This section includes an overview of the indirect effects from the project, a description of the indirect effects for each alternative, a description of the indirect effects in each jurisdiction within the indirect effects analysis area, and a description of the potential environmental impacts resulting from changes in land use due to the MVC project.

24.5.1 Overview of Indirect Effects

In general, the project's indirect effects are expected to occur in areas planned by cities and counties for future development. The most vulnerable natural resources (such as wetlands) that could be affected are protected by federal regulations, as are some agricultural lands. However, large unfragmented tracts of land and farmland are not protected. Though project-influenced development could encroach on these lands, such development is expected to be consistent with local plans.

24.5.1.1 Overall Effects on Growth Patterns

The MVC project by itself is not expected to cause more growth than what is already projected by the Governor's Office of Planning and Budget. (The growth projections from the Governor's Office indicate a faster pace of annual growth than recent past trends.) Rather, the MVC project would shift and affect the pace of some of the projected growth in certain locations. Particular land areas would become more accessible due to the MVC project and would likely be developed or redeveloped because market demand is expected to remain strong for continued development. The cities, counties, and developers believe that the MVC project would tend to influence some of this new growth in the form of more mixed-use development at higher densities near the highway interchanges and key transit stations (Parsons Brinckerhoff 2005a, 2005b).

There are several reasons for this conclusion. First, the MVC study area is projected to experience substantial population and employment growth between now and 2030 with or without the MVC project. This growth is due to social and economic influences that are independent of transportation facilities. The primary indirect effect of the MVC project would be to redirect some of the projected growth in the form of changes in land use in areas near the project. Generally, freeway interchanges can attract highway-oriented commercial uses within 1 mile to 2 miles and residential uses within 5 miles to 6 miles, if travel connections are good (Cervero 2000). However, in the indirect effects analysis area, the actual limits of residential growth are constrained by the undevelopable steep slopes of the Oquirrh Mountains to the west and the already fully built-out areas to the east. Highway-oriented commercial uses would not be constrained because the land is generally flat within 2 miles of each interchange and the land is undeveloped along much of the alignment, except in West Valley City.

Second, some of the growth projected by the Governor's Office of Planning and Budget would be shifted to the transit stations in Salt Lake County (within 0.25 mile to 0.5 mile for mixed-use, higher-density developments, or within walking distance). Without the MVC project, the pace of development might slow in northwestern Utah County due to the lack of improvements to major roads, but the lack of the MVC project would not affect the overall projected growth totals by 2030. Without the MVC project, the pace and density of development in Salt Lake County would be less affected since there are other existing and planned transportation choices.

Third, the MVC project's indirect effects are already anticipated by the cities and counties in the MVC study area and are expected to be controlled by local land-use planning policy as reflected in their general plans and zoning. Further, while many of the cities and counties have already reserved the project right-of-way in

these plans, they expect growth with or without the project. They believe that, if the project is not built by the Utah Department of Transportation (UDOT), other roads would be developed by local governments in the same corridor in the future because of the current need. Further, if transit is built first and the freeway is delayed, most communities would be unwilling to change their master plans because they believe the highway is still needed and would eventually be built (Parsons Brinckerhoff 2005b).

Fourth, most communities expect to increase densities of developments near the freeway interchanges for highway-oriented commercial development and multi-family housing, with the latter as a buffer for lower-density areas beyond. Higher-density commercial development and housing is envisioned for the transit corridor, but no specific transit-oriented developments are planned yet for the transitway, except in Herriman. At least four transit-oriented developments are planned along the Mid-Jordan light-rail transit line (a separate project from the MVC) in West Jordan and South Jordan. Two additional transit-oriented developments are being planned by private developers along potential commuter rail lines in the adjacent I-15 corridor (separate projects from the MVC) in Bluffdale and Lehi.

Despite these initiatives toward higher density, the predominant development pattern would continue to be low-density residential (single-family, detached housing on 10,000- to 12,000-square-foot lots), low-rise office parks, and big-box retail and strip commercial plazas, regardless of which MVC alternative is selected. This pattern is likely to continue because it is traditional on the western side of the Salt Lake Valley, is preferred by the strong housing market, and developers report that it is easier to obtain permit approvals for this pattern rather than for the emerging mixed-use developments and higher densities. Although most of the developers interviewed for this study said they would be willing to build at higher densities, particularly in the master-planned communities with future transit possibilities, they said that it remains difficult for the public to accept mixed uses and higher densities (Parsons Brinckerhoff 2005a).

24.5.1.2 Effect on Growth near Interchanges and Transit Stations

Highway Interchanges

In general, highway interchanges provide access for commercial uses as far as 1 mile to 2 miles away and for residential uses as far as 5 miles to 6 miles away, depending on the existence and capacity of the connecting roadways and other constraints (Cervero 2000). However, due to natural constraints in the MVC study area (such as the Oquirrh Mountains on the west and Utah Lake on the south) and human-made constraints (such as the already fully built-out land in the

east and Camp Williams), the actual limits of interchange-related residential development for the MVC project are substantially reduced. The blue-shaded areas in Figure 24-4, Potential Project-Influenced Development Areas and Wetlands, show the approximate extent of project-influenced development considering these obvious constraints. The east edge of this blue-shaded area is more influenced by existing freeways, mainly I-215 and I-15, than it would be by the interchanges that would be built for the MVC roadway alternatives.

Transit Stations

With the 5600 West Transit Alternative, increased density and mixed-use development could be expected within 0.5 mile of transit stations or transit stops. In general, the geographic limits of transit-oriented development are within easy walking distance (0.25 mile to 0.5 mile) of a transit station or transit stop (see Figure 24-4). Development beyond the immediate area of the 5600 West Transit Alternative would not be affected by location of the transit alternative on 5600 West.

24.5.2 Indirect Effects on Land Use by Alternative

24.5.2.1 No-Action Alternative

If the No-Action Alternative is selected, the indirect effects analysis area would continue to experience rapid development. The projections from the Governor's Office of Planning and Budget predict substantial growth for both Salt Lake County and Utah County, and local and regional planners and developers believe that much of that growth will take place in the indirect effects analysis area because this area contains much of the remaining developable land in the region (Parsons Brinckerhoff 2005a, 2005b). As a result, the indirect effects analysis area is expected to develop toward full build-out even under the No-Action Alternative.

Interviews with local land-use officials and developers (Parsons Brinckerhoff 2005a, 2005b) support the following general conclusions regarding the likely development trends under the No-Action Alternative:

- For the most part, planned development under the No-Action Alternative would continue the current trend of relatively low-density single-family homes and relatively low-intensity commercial development. Exceptions to this low-density pattern would be development near other transit projects, such as the West Valley light-rail transit line into West Valley City and Magna and the Mid-Jordan light-rail transit line into West Jordan and South Jordan.

- In northern Utah County, the pace of development would slow in Lehi, Saratoga Springs, and especially in Eagle Mountain as traffic congestion increases. Higher density, mixed uses, and some commercial and industrial developments would either not be built or would be built later due to the absence of improved roadways, extensions of existing roadways, and high-capacity transit.
- Other transportation projects would likely be built to meet the expected traffic. In Utah County, planners and developers stated that they would expect roadway improvements to be made to existing arterials in Lehi, between Lehi and I-15, and between Saratoga Springs and Eagle Mountain to meet the expected traffic. For example, UDOT is beginning the environmental process for a new east-west arterial that would connect I-15 to Redwood Road at about 1000 South in Lehi. In Salt Lake County, planners and developers noted in general that some facilities likely would be built to meet the expected north-south traffic if the No-Action Alternative is selected for the MVC project.
- Several significant developments would occur even if the MVC project is not built. For example, Salt Lake City anticipates that development of the area of the city between I-80 and SR 201 would take place without the project, and Salt Lake City has not incorporated the MVC project into its plans for that area. For similar reasons, Salt Lake City believes that its plans for the northwest quadrant of the city would proceed even if the MVC project were not built.

Overall, it is unlikely that adopting the No-Action Alternative would stop development in the indirect effects analysis area or would stop the construction of other transportation projects that could support development. Rather, the No-Action Alternative would likely slow the pace of development to some degree. However, even this effect on development could be offset, if local jurisdictions or developers provide other transportation facilities to meet the demand for access to new developments.

24.5.2.2 Salt Lake County Alternatives

5600 West Transit Alternative

The geographic limits of transit-oriented development are within easy walking distance (0.25 mile to 0.5 mile) of a transit station (see Figure 24-4, Potential Project-Influenced Development Areas and Wetlands). High-capacity, high-speed transit modes, such as light-rail transit lines in their own exclusive rights-of-way, can encourage the development of regular feeder bus routes that can



extend the area of transit influence beyond this 0.5-mile area. High-capacity transit modes in their own exclusive rights-of-way can also lead to higher-density development within the 0.5-mile area than would be the case if a low-capacity transit mode is selected (such as light-rail transit operating in a street right-of-way).

The more dense development scenario for transit is reflected in the Growth Choices projections for West Jordan and South Jordan because of the influence of planned high-speed light-rail transit service, in particular the Mid-Jordan light-rail transit line between South Jordan and Murray to connect with the existing TRAX light-rail transit to Salt Lake City. The Mid-Jordan light-rail transit line would operate in its own exclusive right-of-way and would be mostly on an elevated alignment above the roadway, which would allow it to travel at higher speeds than transit that shares the road with vehicles.

In contrast, the 5600 West Transit Alternative that is proposed as part of the MVC project would not be grade-separated at intersections (that is, the transit cars would pass through the same intersections as vehicles) and, therefore, would operate at slower speeds than the Mid-Jordan light-rail transit line. Because of its relatively frequent stops, the MVC transit would provide better access to adjacent developments but would travel at slower speeds, thus providing a lower level of mobility.

Locations that are easy to travel to and centrally located tend to be better locations for transit-oriented development. Conditions that influence successful transit-oriented developments include excellent transit service (including feeder buses), regional and local public policies that encourage transit-oriented developments, strong market support, and available land near station sites (Transportation Research Board 1996).

In conclusion, the 5600 West Transit Alternative would likely attract some development close to the transit stations, but the stations would likely have less impact on development than what is typical for higher-speed transit lines such as the Mid-Jordan light-rail transit line.

5800 West Freeway Alternative with 5600 West Transit Alternative

In general, the indirect effects of the 5800 West Freeway Alternative would be the same as those from the 7200 West Freeway Alternative (see below) except that development would be shifted eastward and centered along 5800 West rather than 7200 West. The existing commercial and retail areas along 5600 West would develop or redevelop at a higher density (compared to the 7200 West Freeway Alternative) due to the proximity of the freeway. In addition, high-



density residential development and redevelopment would occur near 5600 West due to the proximity of a regional freeway and major arterial.

7200 West Freeway Alternative with 5600 West Transit Alternative

As shown in Figure 24-4, Potential Project-Influenced Development Areas and Wetlands, the proximity of interchanges to undeveloped land means that development in almost all of the northern part of the indirect effects analysis area would be affected by the 7200 West Freeway Alternative.

With the 7200 West Freeway Alternative, the overall pace of development would likely be greater than what would occur if the No-Action Alternative is selected. Closer to interchanges, development would likely take the form of highway-oriented commercial, low-density office and industrial parks, and possibly medium-density housing as a buffer between the interchange and lower-density residential beyond. Larger-scale, denser commercial developments could occur at the planned full interchanges with existing major routes, such as I-80 and SR 201 in Salt Lake City, because of the excellent mobility provided. Development of Salt Lake City's northwest quadrant north of I-80 would become more feasible because it would serve as a major origin and destination for the new north-south freeway. The rapid pace of development in southern Salt Lake County and northern Utah County would continue under this alternative.

24.5.2.3 Utah County Alternatives

In northern Utah County, the two freeway alternatives are expected to increase the pace of development at interchanges with local access. The freeway alternatives would provide better mobility than the Arterials Alternative. The 2100 North Freeway Alternative is expected to increase the pace of development more than the Southern Freeway Alternative because the area surrounding this alternative has fewer natural constraints such as water resources, wetlands, and floodplains. The Arterials Alternative would increase the pace of development on adjacent accessible and developable parcels since access would be improved.

Southern Freeway Alternative

The Southern Freeway Alternative would increase the pace of development near its interchanges more than the No-Action and Arterial Alternatives would because it would provide better mobility. Project-influenced development is likely to occur, especially at improved arterial streets, Redwood Road, and SR 73 (SR 73 is the only existing road that connects I-15 through Lehi to Saratoga Springs and Eagle Mountain). Improved local access directly east of the Southern Freeway/I-15 interchange (at Pleasant Grove) is likely to increase the pace of

new growth because of excellent mobility and access to parcels and is likely to add to existing development that has already occurred at that location.

In addition, near the Pleasant Grove interchange is a proposed commuter rail station as part of the separate I-15 project, which is expected to attract development. The freeway-to-freeway interchange at Lindon, farther south, is not likely to attract development because no local access is provided. The Southern Freeway alignment in Lehi next to Utah Lake is likely to increase the pace of development at the interchanges with local arterial streets, but the extent of development could be constrained by the extensive floodplain and wetlands associated with Utah Lake and the Jordan River.

If the Southern Freeway Alternative is selected, the overall pace of development would likely be greater than what would occur if the No-Action Alternative is selected. Closer to interchanges, development would likely take the form of highway-oriented commercial, low-density office and industrial parks, and possibly medium-density housing as a buffer between the interchange and lower-density residential beyond. Larger-scale, denser commercial developments could occur at the interchanges away from Utah Lake because of the excellent access and mobility provided. However, steep topography and the protected areas of the Jordan River would limit some development. The rapid pace of development in southern Salt Lake County and northern Utah County, particularly in Saratoga Springs and Eagle Mountain, would continue with this alternative. With the No-Action Alternative, the pace of development in these two cities would continue in the near term but would slow in the future as mobility decreases with no other access improvements.

2100 North Freeway Alternative

The 2100 North Freeway Alternative would increase the pace of development near its interchanges more than the No-Action and Arterial Alternatives would because it would provide better mobility. Also nearby is a proposed commuter rail station at Thanksgiving Point in Lehi which, if built, would further change land-use development in this area. Less development would occur along arterial streets such as SR 73 because less mobility would be provided there and because through traffic would tend to be diverted to the 2100 North Freeway connection to I-15. However, increased access to adjacent parcels along SR 73 is expected to influence changes in land-use development.

If the 2100 North Freeway Alternative is selected, the overall pace of development would likely be somewhat greater than what would occur if the No-Action Alternative is selected. Closer to interchanges, especially those with local access, development would likely take the form of highway-oriented commercial,

low-density office and industrial parks, and possibly medium-density housing as a buffer between the interchange and lower-density residential beyond. Medium-scale commercial developments could occur at the 2100 North Freeway interchange with I-15 because of the improved access provided. The rapid pace of development in southern Salt Lake County and northern Utah County would continue with this alternative.

Arterials Alternative

The Arterials Alternative would improve arterial street connections between the MVC freeway and I-15 at two points: Porter Rockwell Boulevard at a reconstructed 1400 South interchange and 2100 North at a reconstructed 1200 West interchange. The Arterials Alternative also would improve 1900 South along Utah Lake between Redwood Road in Saratoga Springs and I-15 in Pleasant Grove. Project-influenced development is expected to occur at all three arterial streets because they would provide access to adjacent developable parcels, although they would provide less mobility than the freeway alternatives. However, less development would occur along Porter Rockwell Boulevard due to the steep topography and along 1900 South near Utah Lake and the Jordan River because of the floodplains. The most development would occur along 2100 North because it is less constrained by topography or floodplains. The improved connection of SR 73 with the southern terminus of the MVC freeway would affect development along SR 73, which is the only existing road that connects I-15 through Lehi to Saratoga Springs and Eagle Mountain. The Arterials Alternative's connections with I-15 would influence development at adjacent accessible parcels similar to what has already occurred at the I-15 connections.

A commuter-rail station as part of the separate I-15 improvement project is located near each of the Arterials Alternative interchanges with I-15. Local access to the stations would attract further development in these three areas if suitable developable parcels were available.

If the Arterials Alternative is selected, the overall pace of development would likely be slightly greater than what would occur if the No-Action Alternative is selected and less than what would occur if a freeway alternative is selected. Closer to interchanges, development would likely take the form of highway-oriented commercial, low-density office and industrial parks, and possibly medium-density housing as a buffer between the interchange and lower-density residential beyond. Medium-scale commercial developments could occur at the 2100 North and 1900 South interchanges with I-15 because of the improved access provided. The rapid pace of development in southern Salt Lake County and northern Utah County would continue with this alternative.

24.5.2.4 Tolling Options

Although many national studies of toll facilities have been conducted, none of the studies addressed new project-influenced development or other indirect effects of tollways. In the MVC study area, it appears likely that the indirect effects of a tolled highway would be somewhat less in magnitude and would involve different changes in land use than the indirect effects of a free (non-tolled) facility. There are several reasons for this conclusion:

- Official growth projections for the MVC study area are high. Major growth is occurring in the MVC study area and would continue through 2030 with or without the project. In other words, market demand is expected to remain strong for continued development regardless of how a new highway is financed.
- A new freeway, whether tolled or not, would attract commuters and commercial truck traffic in this corridor since there would be no alternate highway of equal quality.
- A toll of \$0.10/mile for the off-peak period and \$0.20/mile for the morning and afternoon peak periods (the busiest periods of the day) would reduce traffic volume on the tollway by about 35% to 50% in certain segments compared to the MVC non-tolled alternatives, according to the tolling analysis prepared for this project (see Section 2.2.5, Tolling Options for the MVC Alternatives). This toll could prevent affordable housing and smaller businesses from locating near the interchanges due to the extra expense of using the tollway.
- The toll would divert about 50% to 65% of the trips that would have used a non-tolled MVC alternative to other roads on the network. However, the location of a new north-south, limited-access highway in the western Salt Lake Valley and the prospect of faster, less-congested trips would still make the proposed MVC tollway the preferred route for many motorists, including truck drivers.
- The type of development that occurs near the tollway interchanges might trend more toward higher-end office and housing uses than industrial businesses such as warehouses and distribution centers. On the other hand, owners of these types of industrial businesses might conclude that a location near the tollway is more cost-effective because it allows faster, congestion-free travel than slower trips on the more congested free roadways.

24.5.2.5 Highway-Only and Transit-Only Scenarios

Highway-Only Scenario

If only the MVC highway is built, current trends such as continued low-density development are expected to continue, with the pace of project-influenced development increasing near the project interchanges with local access. (See Chapter 29, Sequencing, for more discussion of highway-only and transit-only scenarios.) This project-influenced development around interchanges would be in the form of highway-oriented commercial, low-density office and industrial parks, and possibly medium-density housing as a buffer between the interchange and lower-density residential beyond. Major developments could be located near the planned full interchanges with I-80 and SR 201 in Salt Lake City because of the excellent mobility provided by the highway. Development of the city's northwest quadrant north of I-80 would become more feasible because it would serve as a major origin and destination point for trips on the new north-south freeway. The rapid pace of development in southern Salt Lake County and northern Utah County would continue under this scenario. The cities are less likely to implement high-density development along 5600 West if the 5600 West transit line is dropped from consideration.

Transit-Only Scenario

If only the 5600 West Transit Alternative is built, increased density and mixed-use development would occur within 0.5 mile of the transit stations but only in Salt Lake City, West Valley City, West Jordan, South Jordan, and Herriman. The 5600 West Transit Alternative is not planned to extend south of Herriman into Utah County, so the indirect effects of high-capacity transit such as higher-density land-use development would be absent farther south. The increased development in these five cities along the transitway would not reduce the market demand for development elsewhere. Overall, the low-density development trend is expected to continue throughout the MVC study area until the study area is completely built out. This is expected because of the high growth projections from the Governor's Office of Planning and Budget for the MVC study area and the strong regional market preference for single-family homes.

24.5.3 Indirect Effects on Land Use by Subarea

The following sections describe the potential indirect effects of the MVC action alternatives and the No-Action Alternative in each jurisdiction in the MVC study area and adjacent areas in the indirect effects analysis area. This section also describes the effect on each jurisdiction if the project is not built. Much of the data for this section were gathered through interviews with local officials and

developers, and these interviews are documented in the two technical reports (Parsons Brinckerhoff 2005a, 2005b).

24.5.3.1 Salt Lake City

The pace of development in the Salt Lake City portion of the MVC study area is expected to increase when other available and developable sites are built out and when the MVC project becomes operational. These influences would increase the viability of commercial and industrial development in Salt Lake City as recognized by the employment projections from the Governor's Office of Planning and Budget.

The MVC project alternatives in Salt Lake City would influence land-use development differently. The 7200 West Freeway Alternative along 7200 West would tend to pull initial development farther west than would a freeway along 5800 West. With the roadway alternatives, the interchanges with I-80 and SR 201 are likely to be the prime sites for development. The transit stations associated with the 5600 West Transit Alternative would provide access to adjacent parcels and would provide access to more distant parcels if a feeder bus system is implemented.

The MVC project freeway alternatives are not shown on the City's master plan, nor has the City rezoned to accommodate the Growth Choice land uses. The City prefers an improved arterial concept rather than a freeway concept to provide better access to adjacent parcels that are zoned for major distribution industries and offices. Without the MVC project, the City expects no change in its development plans. With or without the MVC project, development is likely to take place initially east of 5600 West because three east-west roads are proposed to be improved independent of the MVC project. These roads are 700 South, 1525 South, and 2100 South, all of which are between 5600 West and Bangerter Highway. With the MVC project, especially if the 7200 West Freeway Alternative is selected, additional development would tend to be located west of 5600 West out to the city limits as constrained by the wetlands along 7200 West between SR 201 and I-80 (see Figure 24-4, Potential Project-Influenced Development Areas and Wetlands).

Under the No-Action Alternative, existing trends would continue with full build-out occurring at the same relatively slow pace as the current pace based on motorists' continued access to existing roadways, namely I-80, SR 201, and 5600 West. Development would spread west to 7200 West as sites to the east are built out. The eventual development of the northwest quadrant would depend on overall market conditions, the suitability of developable land, and continued

access from I-80 (east-west freeway) rather than from 7200 West and 5600 West (north-south arterial roads).

Northwest Quadrant

The MVC project would increase accessibility to the northwest quadrant of Salt Lake City north of I-80, where a large mixed-use community is planned in the future. The MVC project would provide new and improved access to and from the south with a new highway and from the south and the east by the 5600 West Transit Alternative. The northwest quadrant development would provide a northern origin and destination for the MVC project roadways, so the project could influence some of the growth there. The No-Action Alternative could slightly reduce the potential for development in the northwest quadrant compared to the MVC action alternatives.

24.5.3.2 West Valley City

With the MVC project, West Valley City expects land-use densities (especially for commercial and residential uses) to increase near interchanges and transit stations and is considering transit-oriented developments at 3500 South and 2700 South.

The City expects the MVC project to influence redevelopment of land uses near the proposed interchanges and transit stations. In particular, the City expects higher-density residential and commercial development at the interchanges of the 5800 West Freeway Alternative, particularly between 2100 South and 4100 South. Without the project, the City expects lower-density development. With the 5600 West Transit Alternative, it expects transit-oriented developments at 5400 South, 3500 South, and 2700 South.

Project-influenced development would have minor effects on environmental resources since there are few undeveloped areas left in the city, especially in the largely developed project corridor.

The 7200 West Freeway and 5800 West Freeway Alternatives would not have significant indirect effects within the city limits, since development would be constrained by the lack of available developable parcels. Similarly, the 5600 West Transit Alternative would have limited indirect effects for the same reason. If project-influenced development is located in the city, it is likely to be facilitated by the redevelopment of underdeveloped parcels and by determined public planning policy.

Under the No-Action Alternative, existing trends would continue. Other planned roadway and transit improvements would influence development nearby as already planned by the City.

24.5.3.3 Unincorporated Salt Lake County

With the MVC project, increased densities would be permitted by the County near interchanges and stations. Development would proceed according to the County's general plan (which anticipates low-density residential development), even if the MVC project is not built. Development in the county is influenced by the existence of transportation facilities. The general plan currently shows a new north-south freeway along the 5600 West alignment; this new freeway was recommended in a previous study known as the Western Transportation Corridor study (see Section 1.5.5, Corridor Planning Studies). The County is awaiting a final decision on the MVC project before changing its general plan.

Under the No-Action Alternative, the existing trend of low-density development adjacent to built-up areas would continue.

24.5.3.4 West Jordan

West Jordan expects growth to continue as planned with or without the MVC project. Large-lot subdivisions would continue to be built west of the core of the city. Roadway improvements are already planned along three east-west roads, and these improvements would support such a land-use policy. If the MVC project is built, highway-related commercial development would be allowed near the interchanges, and mixed-use developments would be allowed along the 5600 West Transit Alternative. Transit-oriented developments would be considered along the transit alternative if they prove successful along the Mid-Jordan light-rail transit line as already planned.

Under the No-Action Alternative, the existing trend of developing the city's western half would continue. The City has already planned to accommodate the effects of other planned roadway and transit improvements.

24.5.3.5 South Jordan

South Jordan believes that less economic (commercial) development would occur if the MVC project is not built, but residential development will occur with or without the project. Two major westward extensions of roadways are planned to support the Daybreak development: 10400 South (South Jordan Parkway) and 11400 South to 11800 South. With the MVC project, the City expects higher densities at the interchanges and transit stations. Transit-oriented development principles would be employed at the transit station areas. The Daybreak transit

station would be on the proposed Mid-Jordan light-rail transit line, which would share the same track as the 5600 West Transit Alternative through Daybreak (the Mid-Jordan light-rail transit line is projected to be completed before the 5600 West Transit Alternative). The contaminated aquifer (referred to as the Kennecott Plume) that underlies part of the city is not considered a constraint to development because it is being cleaned up by Kennecott (see Section 18.4.3.2, 5800 West Freeway Alternative, in Chapter 18, Hazardous Waste Sites).

According to Kennecott Land, the developer of Daybreak, the No-Action Alternative could change the land-use mix and pattern but not the overall size of the Daybreak development. Specifically, there would be less industrial and commercial use and more housing developments in Daybreak. If the MVC project is built, the large amount of commercial and industrial space currently planned as part of Daybreak would be located next to the freeway right-of-way and transit station. Without the project, the location of the town center and other commercial and industrial uses could be reconsidered to take advantage of other planned roads. However, the terminal station of the Mid-Jordan light-rail transit line is planned to be positioned near the planned town center, so the town center could remain in its currently planned location even if the MVC project is not built. In the rest of South Jordan, existing trends would continue regardless of whether the project is built.

24.5.3.6 Riverton

Riverton believes that if the MVC project is built, development would proceed as planned but at higher densities. However, Riverton does not include the MVC project in its land-use plan.

Under the No-Action Alternative, the present pattern of low-density development would continue. The City expects that, without the project, development densities would not be increased, and commercial uses near MVC interchanges would not be developed. However, the City also believes that a road will eventually be built, even if the MVC project is not constructed.

24.5.3.7 Herriman

With the MVC project, Herriman would be served by two freeway interchanges (at 12600 South and 13400 South) and the transit station at the southern terminus of the 5600 West Transit Alternative.

Although Herriman has not signed the Growth Choices Agreement, it has changed its zoning to accommodate the Growth Choices Vision policies. The City has already rezoned the areas around the interchanges for higher densities and is planning to adjust planned land uses to support the transit station. The City



is also planning on a large park-and-ride facility at the station and expects commuters from the south to park at Herriman and ride the transit to their jobs. In addition, Sorenson Development Company has a site that includes the transit station and is planning on a downtown-style development, which the city does not have. If the MVC project is built, development would likely proceed according to these current plans.

Under the No-Action Alternative, the City believes that development would proceed generally as planned but with less-intensive uses near the project's proposed interchanges and transit station.

24.5.3.8 Bluffdale

Bluffdale believes that development would continue with or without the MVC project. If the MVC project is not built, the higher densities planned for the Porter Rockwell Boulevard interchange could shift to Redwood Road, where improvements are planned. No east-west roadway improvements are planned in Bluffdale.

Sorenson Development Company has plans for a 2,300-acre development in both Bluffdale and Herriman called Rosecrest. This development would include 5,500 housing units at an average density of 12 to 14 units per acre, which is much higher than the typical housing density in Bluffdale. Rosecrest would also include space for commercial and industrial businesses near the project interchange that would provide 1,500 to 5,000 jobs. Without the MVC project, Sorenson would reduce densities considerably for both residential and commercial land uses.

24.5.3.9 Utah County

Real estate development is proceeding at a rapid pace in the northern Utah County portion of the MVC study area. This development has been occurring without the MVC project and is likely to continue regardless of whether the MVC project is built. The indirect effects of the MVC project in Utah County would likely include further development in areas that have direct access to the new road. Any of the east-west roadway alternatives, particularly those that connect to I-15, would tend to increase pressure to develop land near the I-15 interchanges. The Southern Freeway Alternative would influence more growth in outlying areas than the Arterials Alternative would because the freeway alternative would provide more travel capacity and greater speed. Development could be limited or prevented by environmental constraints near Utah Lake and the Jordan River.



24.5.3.10 Unincorporated Utah County

Utah County believes that the Southern Freeway Alternative would influence the location of more growth in unincorporated areas than the 2100 North Freeway or Arterials Alternatives would because it would provide better mobility. Most of the growth influenced by the MVC project in northern Utah County would occur toward the west in Saratoga Springs and Eagle Mountain. Also, with the MVC project, increased commercial development would occur at the interchange with I-15 in Pleasant Grove. County officials believe that the Southern Freeway Alternative would provide the greatest accessibility to Salt Lake City compared to the 2100 North Freeway and Arterials Alternatives. However, growth would be constrained by the Timpanogos Special Service District sewage treatment plant northeast of Utah Lake, the Jordan River floodplain, and the high water table along the north shore of Utah Lake.

To be consistent with the travel model used for the MVC study area, city areas west of I-15 in American Fork and Lindon were included in the unincorporated areas of the county. In these areas, the City of American Fork favors the Arterials Alternative but is not opposed to the Southern Freeway Alternative. The City of American Fork requires developers to preserve a 96-foot-wide right-of-way for the Arterials Alternative; this requirement originated in the North Valley Connectors Study (MAG 2002). Development would occur in these areas even without the MVC project because the area is already served by I-15. The MVC project would change the land uses at any new interchange with I-15. The City has signed the Growth Choices Agreement but has not yet changed its land uses to reflect the Agreement.

The City is planning to maintain the density of development in this area even if the MVC project is not built. Development in the city is constrained by wetlands, high groundwater, and Agriculture Protection Areas.

The City of Lindon supports the Southern Freeway Alternative and its preliminary design concept for the interchange with I-15 because this alternative would not prohibit access to developable properties. The project would not change planned developments near I-15, since the city is more influenced by I-15 than by the project. Wetlands and a sewer lift facility could constrain development to some extent.

The area near the interchange with I-15 in Pleasant Grove is already zoned for big-box and strip commercial, and this zoning is likely to remain without the MVC project.

24.5.3.11 Lehi

Lehi shows the Arterials Alternative from a previous study, the North Valley Connectors Study, in its transportation master plan. The City believes that these arterials eventually would be built in some form regardless of whether they are constructed as part of the MVC project. The City also supports the Southern Freeway Alternative along 1900 South because it would be less divisive to the community. If the MVC project is built, Lehi would amend its general plan to allow commercial development near the interchanges. The City believes that communities to its west (Saratoga Springs and Eagle Mountain) that need access to I-15 would benefit more from the MVC project than Lehi would.

The City has signed the Growth Choices Agreement but has not yet changed its zoning to implement the Growth Choices Vision land-use concepts. Project-influenced growth and other growth would be constrained somewhat by wetlands and floodplains along the Jordan River and Utah Lake. The environmental impacts from such growth could include increased runoff (from more impervious surface area) to Utah Lake, a potential increase in the pollutant level in the lake, and impacts to groundwater, wetlands, and the 100-year flood zone as defined by the Federal Emergency Management Agency.

The No-Action Alternative would not change the development pattern in Lehi. The City believes that it does not need the MVC project to achieve build-out and that development depends more on Lehi's own roadway system and I-15. Roadway improvements are planned along I-15, 10800 West (Redwood Road), and 9550 West. Local officials in Lehi have stated that they would maintain planned densities if the MVC project is not built.

24.5.3.12 Eagle Mountain

The MVC project is not shown in Eagle Mountain's general plan, but the alternatives in the previous North Valley Connectors Study are shown. This is important since the alternatives in this study helped form the MVC project alternatives in Utah County. Eagle Mountain is in favor of the 2100 North Freeway Alternative, but has not yet formally approved the alternative. The City is interested in creating an access point to Pony Express Road, an internal east-west road within Eagle Mountain that has been improved and extended westerly to the city's emerging town center. The MVC alternatives are not within the city limits, but in neighboring Saratoga Springs, access to the MVC project is expected to support the pace of development and possibly increase commercial developments in the northeast section of the city. There are no commercial uses at present due to lack of access.

Without the MVC project to provide new access to the north (Salt Lake County) and east (I-15), the annual rate of development in Eagle Mountain would decrease in the future, according to developers. Other east-west roadway improvements in the future would help maintain the pace of development, but not to the same extent as would occur with the MVC project. The No-Action Alternative would not change the overall size and development pattern of the city, according to city planners.

24.5.3.13 Saratoga Springs

Saratoga Springs does not show the MVC project in its general plan, though the MVC project could bisect the city depending on the alternative selected. The City has not adopted the Growth Choices Agreement or changed its land-use plan to reflect the Agreement. It does plan to update the land-use plan to reflect the influence of the MVC project, particularly the Southern Freeway Alternative. For example, the City expects higher-density development along SR 68, Redwood Road, and interchanges with the MVC project. In addition, Saratoga Springs has formally approved the 2100 North Freeway Alternative. Full build-out of the city is expected even if the MVC project is not built, but the build-out would occur at a slower pace in the future, according to the city planners. If the MVC project is not built, the City expects the arterials to be built as proposed in the North Valley Connectors Study.

Constraints to growth influenced by the MVC project include the Jordan River floodplain, wetlands, the steep slopes of the foothills of the Oquirrh Mountains, and Agriculture Protection Areas. Because of current development pressures, farmland owned by the LDS Church and other Agriculture Protection Areas could be developed in the long term.

24.5.4 Planned Developments in Other Areas

24.5.4.1 West Bench

Kennecott plans to develop the west bench of the Oquirrh Mountains over the next few decades beginning in 2010–2012. (This area is west of the MVC study area.) The MVC alternatives, especially the 7200 West Freeway Alternative, would help support growth along the west bench. However, development on the west bench is a long-term prospect and will likely require extensive infrastructure improvements (such as water and sewer) before it can become viable. In addition, development on the west bench will also require extensive roadway improvements at the western edge of the MVC study area and beyond, most likely including upgrades to existing SR 111. For these reasons, the potential for

the MVC project itself to influence development on the west branch is limited. Development on the west bench is anticipated to begin in 2010–2012.

The 5600 West Transit Alternative would not influence growth along the west bench. To provide transit service to the west bench, Kennecott plans to tie its existing railroad lines to the Mid-Jordan light-rail transit line in South Jordan.

The No-Action Alternative would not affect Kennecott's plans to develop the west bench over the long term.

24.5.5 Environmental Impacts of Indirect Effects

This section focuses on the potential impacts to selected environmental resources that are considered to be the most vulnerable to changes in development patterns or changes in the pace of development due to the MVC project. These environmental resources include sensitive resources such as wetlands and floodplains since they provide habitat for wildlife and flood-storage capacity. Environmental impacts such as air pollution and noise impacts are direct impacts of the MVC project and are covered in Chapter 12, Air Quality, and Chapter 13, Noise.

Land development and its associated impacts depend on general regional and statewide economic conditions, state permitting requirements, local zoning and land-use ordinances and their administration, and the decisions of individual landowners. Given these influences and changing conditions over time, it is difficult to forecast specific areas that might be developed and the impacts of such development. As a result, the following discussion provides a general analysis of the indirect impacts of the MVC project on environmental resources.

According to the measurements from aerial photographs prepared for this project, nearly 50,000 acres of undeveloped land remained in the MVC study area in 2003. There is no available accepted ratio or correlation between the amount of developed acres and acres of affected natural resources (such as wetlands). Development on a specific site typically depends on site-specific resources, terrain, and local conditions, and predictions as to what acreage of specific natural resource impacts might be expected per acre of development are speculative.

The land-use plans and zoning information for each city and county in the MVC study area were reviewed to identify where future development is officially expected or desired. For the purpose of this analysis, it was assumed that growth generally would occur within these planned future development areas in a manner generally consistent with these adopted plans. However, this analysis recognizes that development pressures can lead to densities higher than what

current plans allow and can lead to the development of land that is not currently planned or zoned for development.

An additional source of information about important natural resource areas in the MVC study area is project GIS data and maps. A review of these data and maps showed that, in the MVC study area, environmental resources are widespread, and some of these resources function in combination as important parts of larger environmental systems.

24.5.5.1 Floodplains

Salt Lake County

A few floodplains in Salt Lake County could be indirectly affected by the MVC project (see Chapter 16, Floodplains). Development at interchanges with local access for both freeway alternatives in Salt Lake City and West Valley City is expected. Development at stations along the 5600 West Transit Alternative in these cities is not expected to affect floodplains. Farther south in Salt Lake County within the MVC study area, floodplains are few and might not be affected by project-influenced development.

Utah County

In the southern end of the MVC study area in Lehi and Sarasota Springs, project-influenced development could affect floodplains. The MVC project, particularly the Southern Freeway Alternative and the Arterials Alternative, would facilitate growth in areas designated by the Federal Emergency Management Agency as the 100-year floodplains for the Jordan River and Utah Lake (that is, the areas that are expected to be inundated by flood water once every 100 years). These particular floodplains are located near the proposed interchanges in Saratoga Springs and Lehi. (Lehi, for example, allows development in 100-year floodplains if the first habitable floor is above the 100-year flood elevation.) These two cities have 63% of the 100-year floodplain acreage in the entire MVC study area; Lehi has about 1,173 acres and Saratoga Springs has about 1,092 acres. Development near the interchanges of the Southern Freeway Alternative could affect some of these floodplain areas. The other cities in the MVC study area in Utah County have far less acreage in floodplains and would be less affected by project-influenced development.

Because the amount of expected development under both the LRTP and Growth Choices projections would use all developable land, future development will occur in floodplains, subject to local regulations. To the extent that floodplains are located near MVC interchanges or transit lines, for example along the

Southern Freeway Alternative, that alternative would increase pressure to develop those floodplains.

24.5.5.2 Wetlands and Water Quality

Salt Lake County

The MVC project's indirect effects on wetland resources could be the greatest in Salt Lake City, where most of the wetlands in the MVC study area are located. Salt Lake City has over 896 acres of wetlands in the MVC study area, the most (49%) of any city in the MVC study area. In Salt Lake City, the 5800 West Freeway Alternative and interchange with I-80 could influence development that would have indirect effects on wetlands, particularly on the west side of the 5800 West Freeway Alternative and if the wetlands are filled and converted to development. The 7200 West Freeway Alternative would go through wetlands, and project-influenced development could affect them. Farther south in Salt Lake County, the project alternatives' indirect effects on wetlands diminish considerably because there are few wetlands. For example, the 7200 West Freeway Alternative interchange with SR 201 would not have indirect effects on wetlands because there are developable parcels in the area that do not contain wetlands.

Regarding underground water quality, there is a large aquifer contaminated by past Kennecott Utah Copper Corporation mining operations adjacent to the MVC study area. A plume of contamination underlies West Jordan, South Jordan, Riverton, and Herriman. The Southwest Jordan Valley Groundwater Project, which began in February 2005, would transform the contaminated groundwater into drinking water for consumers by 2009. This is a project of the Jordan Valley Water Conservancy District, the Utah Department of Environmental Quality, and Kennecott. The MVC project's indirect effects would not affect this aquifer.

Utah County

Farther south in the MVC study area in Utah County, the Utah County alternatives would directly affect wetlands along the Jordan River and Utah Lake (see Figure 24-4, Potential Project-Influenced Development Areas and Wetlands). However, indirect effects to wetlands by development are considered unlikely in Saratoga Springs since the land-use map of the city's general plan (adopted August 24, 2004) preserves such areas as natural open space, agricultural open space, or agricultural land. There is ample upland acreage in Saratoga Springs that is suitable for development and does not require filling wetlands to achieve build-out.

In Lehi, east of the Jordan River, indirect effects of the MVC project are likely to affect the extensive wetlands in the area, particularly in areas adjacent to the Jordan River and Utah Lake if the Southern Freeway or Arterials Alternatives are selected. Lehi has zoned much of the area around Utah Lake for low-density development, and any development would be subject to local and state permits for development in floodplains and wetlands. Lehi, for example, allows development in 100-year floodplains if the first habitable floor is above the 100-year flood elevation.

24.5.5.3 Farmlands

Salt Lake County

Farmlands are experiencing increasing pressure to convert to urban uses as the cities in the indirect effects analysis area become more developed. (See Chapter 25, Cumulative Impacts.) Many farmlands have already been converted to development. In keeping with the general development pattern of the MVC study area, more farmlands are located in the south in both southern Salt Lake and northern Utah Counties. The affected farmlands are located in Riverton, Bluffdale, and Herriman.

Utah County

Project-influenced development is likely to affect more farmland in Utah County than in Salt Lake County because there is more farmland in Utah County near the project alternatives. Future growth in both counties would result in the loss of some farmland.

Specifically, the project would have indirect effects on farmlands in the southern half of the indirect effects analysis area. Most farmlands near project alternatives are in Lehi, Saratoga Springs, and Eagle Mountain. The freeway interchanges are near these farmlands, which could be converted to development due to economic reasons.

24.5.5.4 Ecosystem Resources

Salt Lake County

Chapter 15, Ecosystem Resources, provides a detailed discussion of habitat fragmentation. Large unfragmented tracts of land are generally more prevalent in the western sections of the indirect effects analysis area in both counties than in the eastern, more developed area. These unfragmented tracts provide habitat for wildlife. As these areas are developed, this habitat area would decrease. The project would not affect habitat for mule deer and elk because these areas are

located largely west of and outside the indirect effects analysis area in unincorporated parts of Salt Lake County, Herriman, Bluffdale, and Camp Williams. Developments that are already permitted and planned, and the indirect effects of the project, could affect migratory bird habitat in parts of Herriman and Bluffdale.

Utah County

Developments that are already permitted and planned, and the indirect effects of the project, could affect migratory bird habitat in Saratoga Springs and Lehi.

Given the rural nature of these tracts and the large amounts of undeveloped land in both counties, they appear able to absorb projected increases in additional population. However, such growth would reduce the size of individual unfragmented tracts. If development occurs in scattered locations, the impacts on this resource would be greater than if development occurs in clusters. Because large tracts of privately owned, unfragmented land are not restricted by permitting requirements from being developed, some future development would take place on these lands, which would adversely affect the benefits to the ecosystem that these unfragmented lands provide.

Conservation lands, including Agriculture Protection Areas (Utah Administrative Code Title 17 [Counties], Chapter 41 [Agriculture Protection Areas]), are lands where development is either prohibited or closely monitored. These areas are located primarily in Utah County and are in no particular pattern, but are generally near, or could include, important water resources. Conservation lands and Agriculture Protection Areas would be protected from future growth by the existing regulations of agencies that have jurisdiction. Therefore, no indirect effects on these resources are likely.

24.5.5.5 Cultural Resources

The MVC project could cause indirect effects that could affect nearby cultural resources. These effects could include a loss of historic integrity due to development that is of a different character than the cultural resources and a change in the context of the built environment near these resources. In many cases, the integrity of the area has already been lost due to new residential subdivisions and commercial developments.

Salt Lake County

In Salt Lake County, the highest potential for indirect effects on cultural resources (primarily represented by historic buildings) exists in the areas immediately adjacent to 5600 West and 7200 West, between about 2100 South

and 4500 South, where concentrations of historic buildings are higher than in the surrounding area. Archaeological resources are generally rare in and around the proposed Salt Lake County alternatives. Most archaeological resources in this part of the Salt Lake Valley are located farther west, along the foothills of the Oquirrh Mountains, or to the north, along the southern edge of the Great Salt Lake. For this reason, the potential for the Salt Lake County alternatives to have indirect effects on archaeological resources is considered low.

Based on a review of data and maps from the historic architectural survey conducted for this EIS, the surveyed properties that could experience indirect effects from each alternative are located in a corridor about 750 feet wide centered on the alternative. (There are additional historic resources beyond this boundary, but they were not surveyed for this EIS.) Possible indirect effects are expected from all of the alternatives, especially where development could occur near project interchanges and transit stations near these historic resources.

This development on available parcels would likely change the character or context in which these historic properties are located and lead to a loss of historic integrity. For example, historic properties along 5600 West in West Valley City could be affected by transit-oriented development as a result of the transitway. Historic resources that are eligible for the National Register of Historic Places are protected under state and federal preservation laws if state or federal funding is used for the project. Private developers are not required to comply with state or federal preservation laws as long as state or federal funding and permits are not involved. See Chapter 17, Historic, Archaeological, and Paleontological Resources, for more information.

Utah County

In Utah County, there are roughly equal numbers of historic buildings near all of the proposed alternatives, although this number is low. However, there are slightly denser concentrations of historic buildings in downtown Lehi near I-15. In Utah County, the risk of indirect effects on archaeological resources is higher close to the northern shore of Utah Lake and near the Jordan River.

24.6 Mitigation Measures

Neither the CEQ regulations nor FHWA's environmental guidance documents implementing NEPA specifically mention mitigation of indirect effects associated with highway projects. FHWA policy as stated in 23 CFR 771.105 discusses mitigation in Sections (d)(1) and (2) for adverse impacts that directly result from a project (not indirectly); this mitigation must represent a reasonable public expenditure.

The permitting requirements associated with Section 404(b)(1) guidelines governing the U.S. Army Corps of Engineers' permit are limited to requiring mitigation for indirect impacts that are quite specific and predictable in terms of location and degree. More generalized indirect impacts such as those associated with possible future growth in a region do not require mitigation.

The indirect impacts associated with building the project alternatives are difficult to predict and describe with any certainty or specificity. The evaluation process involves designating a study area (that is, the area subject to the project's influence such as the indirect effects analysis area); using forecasts of potential growth in population and employment, in this case based on projections from the Governor's Office of Planning and Budget, which do not address transportation improvements; interpreting how this growth will translate into potential future land use (largely based on interviews with land-use decision-makers and a review of master plans); and, lastly, predicting how the potential future land use could affect natural resources.

Note that the Growth Choices process was intended to integrate transportation and land-use planning so that transportation decisions support local land-use choices. This process should help avoid the need to mitigate the impacts of the MVC project on local land-use plans.

Due to the overall uncertainties (mainly because of the complexities involved), the results of the study of indirect effects are more informational and do not name specific areas or resources as requiring mitigation. The following sections suggest various approaches to mitigating the indirect land-use effects from the MVC alternatives:

- Increase the density of development.
- Encourage transit-oriented development.
- Acquire open space and protect farmland.
- Promote regional planning.

To support implementation of these measures, UDOT would be willing to meet with the cities along the MVC project, major landowners, interested parties, and

state legislators to discuss and review the Growth Choices Vision Scenario and provide a forum to discuss the relationship between land use and transportation.

24.6.1 Increase the Density of Development

Development issues have traditionally been addressed by the cities and counties through the administration of land-use regulations (zoning, site plan, and subdivision regulations), usually based on local master plans. The responsibility for mitigating the effects of ongoing growth, regardless of the project, rests largely with the local governments that have jurisdiction over land use as well as with the developers who are carrying out development projects. Nevertheless, UDOT could work with the affected municipalities to help implement the regional vision that resulted from the Envision Utah process. Potential measures to mitigate the effects of growth on the environment include the following:

- Revise local master plans to accommodate even higher densities than planned and to use less land.

Salt Lake City, for example, might consider very high-density office parks and employ transit-oriented development principles for its industrial park development. Locating the front doors of these commercial buildings near the proposed transit alternative and along new feeder bus routes would provide a shuttle service between the businesses and the transit station. In addition, transportation management associations could be organized to promote carpooling. This strategy can also increase transit ridership.

- Update zoning districts to increase densities near the project to include planned community-oriented developments.

This strategy would encourage mixed-use developments and planned communities, which have become permissible in some of the cities such as Lehi, Bluffdale, and South Jordan.

24.6.2 Encourage Transit-Oriented Development

As transit-oriented development in the MVC study area moves from concept to implementation, many decisions will need to be made so that future development occurs in a manner that supports transit. Transit-oriented development draws on many of the same planning and development principles embraced by New Urbanism, Smart Growth, and the Livable Communities movement:

- Moderate- to higher-density development compared to the existing pattern of development
- A mix of land uses

- Compact, pedestrian-oriented designs and streetscapes
- Building design and orientation to the street to allow easy pedestrian and transit access
- A fine-grained, connected street pattern without cul-de-sacs
- A system of parks and open spaces

In addition to these principles, for development to be transit-oriented, it generally needs to be shaped by transit in terms of parking, density, and/or building orientation in comparison to conventional development. Therefore, coordination with the Utah Transit Authority is critical as the transitway is expected to be funded in part by the Federal Transit Administration, which places a high priority on land use that supports transit. A successful transit-oriented development would reinforce the community and the transit system.

- Encourage transit-oriented developments where feasible.

24.6.3 Acquire Open Space and Protect Farmland

An open-space-acquisition program can help shape and restrict the area of development. Further, it can preserve areas for viewsheds (areas from which natural features are visible), a unique environmental asset of the western Salt Lake Valley. Just a slight rise in elevation provides views of the River Valley, Utah Lake, and the spectacular Wasatch and Oquirrh Mountains that define the edges of the Salt Lake and Utah Valleys. The West Jordan master plan, for example, intends to preserve stream beds as open-space links throughout the developing western half of the city.

Farmlands and grazing lands are another source of open space and could be protected from conversion for development, where appropriate and feasible. This rural feature can relieve the pattern of uninterrupted urban development and retain some of the historic uses in the Salt Lake Valley. Such an open-space acquisition plan can be accomplished by a partnership among the local, county, and state governments.

- Acquire open space and protect farmland.

24.6.4 Promote Regional Planning

The overall development pattern in the MVC study area is already well established, but it is not too late for the above strategies to be implemented. For best results, they should be coordinated with long-range regional and interjurisdictional planning so that the cumulative effects of individual and incremental land-use decisions can be better understood. (See Chapter 25, Cumulative Impacts, for a more specific discussion of the cumulative impacts of the many transportation projects that are planned for the region.) WFRC, MAG, and Envision Utah are already well-established regional organizations that foster this longer-range view. But implementation of long-range policies that can change the current low-density development pattern, such as those planning policies resulting from the Growth Choices effort, can be successful only if development approval decisions employ principles that are coordinated and consistent with a regional vision.

- Promote regional planning.

24.7 Summary of Indirect Effects

In conclusion, the MVC project would have indirect effects such as redirecting some projected growth near interchanges and transit stations. This redirected growth could have environmental effects, particularly where wetlands and floodplains are located near the interchanges and transit stations. If the project is not built, the amount of projected growth would be the same. However, the pace of development would be slower, particularly in northwest Utah County. In some cases, the size and density of permitted developments would be reduced, and the land-use mix would change to less commercial development. As a result, the current low-density, suburban-style development pattern would continue. The local and county master plans have anticipated and planned for the increased mobility and access provided by the MVC project, particularly in combination with a regional vision for the MVC study area.

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